Table O.4.14 (1) Financial Cost Estimate Sheet for Transportation Sector, Phase III (2021 - 2030) (1/2)

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
							Foreign Currency	Local Currency	Total, equivalent
20-1	Special Road, sp-1 (arterial road), sp-2, sp-3								
	1)	Direct construction cost			LS	1	0	23.8	23.8
			VAT, 20 %				0	4.8	4.8
			sub total a)				0	28.6	28.6
	2)	Land Acquisition and Compensation Cost		(T100/m2)	m2	475,000	0	0.3	0.3
	3)	Administration Expenses, 5 % of sub total a)					0	1.4	1.4
	4)	Engineerinf Services Cost w/VAT, 10 % of sub total a)					0	2.9	2.9
	5)	Contingency, 10 % of sub total a)					0	2.9	2.9
		Total cost of Project A					0	36.0	36.0

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
							Foreign Currency	Local Currency	Total, equivalent
20-2	Mainn streets of City Importance, Arterial road, (a-1 to a-10)								
	1)	Direct construction cost			LS	1	0	3.6	3.6
			VAT, 20 %				0	0.7	0.7
			sub total a)				0	4.3	4.3
	2)	Land Acquisition and Compensation Cost		(T100/m2)	m2	62,400	0	0.0	0.0
	3)	Administration Expenses, 5 % of sub total a)					0	0.2	0.2
	4)	Engineerinf Services Cost w/VAT, 10 % of sub total a)					0	0.4	0.4
	5)	Contingency, 10 % of sub total a)					0	0.4	0.4
		Total cost of Project A					0	5.4	5.4

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
							Foreign Currency	Local Currency	Total, equivalent
20-3	Main streets of City importance, primary road (p-1 to p-12)								
	1)	Direct construction cost			LS	1	0	0.0	0.0
			VAT, 20 %				0	0.0	0.0
			sub total a)				0	0.0	0.0
	2)	Land Acquisition and Compensation Cost		(T100/m2)	m2	0	0	0.0	0.0
	3)	Administration Expenses, 5 % of sub total a)					0	0.0	0.0
	4)	Engineerinf Services Cost w/VAT, 10 % of sub total a)					0	0.0	0.0
	5)	Contingency, 10 % of sub total a)					0	0.0	0.0
		Total cost of Project A					0	0.0	0.0

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
							Foreign Currency	Local Currency	Total, equivalent
20-4	Main streets of Regional importance, secondary road (s-1 to s-46)								
	1)	Direct construction cost			LS	1	0	11.1	11.1
			VAT, 20 %				0	2.2	2.2
			sub total a)				0	13.3	13.3
	2)	Land Acquisition and Compensation Cost		(T100/m2)	m2	221,000	0	0.2	0.2
	3)	Administration Expenses, 5 % of sub total a)					0	0.7	0.7
	4)	Engineerinf Services Cost w/VAT, 10 % of sub total a)					0	1.3	1.3
	5)	Contingency, 10 % of sub total a)					0	1.3	1.3
		Total cost of Project A					0	16.8	16.8

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
							Foreign Currency	Local Currency	Total, equivalent
20-5	Streets and roads of local importance, tertialy road TR-1, 2, 3)								
	1)	Direct construction cost			LS	1	0	3.6	3.6
			VAT, 20 %				0	0.7	0.7
			sub total a)				0	4.3	4.3
	2)	Land Acquisition and Compensation Cost		(T100/m2)	m2	118,500	0	0.1	0.1
	3)	Administration Expenses, 5 % of sub total a)					0	0.2	0.2
	4)	Engineerinf Services Cost w/VAT, 10 % of sub total a)					0	0.4	0.4
	5)	Contingency, 10 % of sub total a)					0	0.4	0.4
		Total cost of Project A					0	5.5	5.5

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
							Foreign Currency	Local Currency	Total, equivalent
20-6	Trolley Bus project								
	1)	Direct construction cost			LS	1	0	0	0.0
			VAT, 20 %				0	0	0.0
			sub total a)				0	0	0.0
	2)	Land Acquisition and Compensation Cost		(T100/m2)	m2	0	0	0	0.0
	3)	Administration Expenses, 5 % of sub total a)					0	0	0.0
	4)	Engineerinf Services Cost w/VAT, 10 % of sub total a)					0	0	0.0
	5)	Contingency, 10 % of sub total a)					0	0	0.0
		Total cost of Project A					0	0	0.0

Table O.4.14 (1) Financial Cost Estimate Sheet for Transportation Sector, Phase III (2021 - 2030) (2/2)

US$1.0=T144.0=JY108.0 unit:million

Cost code	Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
					Foreign Currency	Local Currency	Total, equivalent
20-7	Bridge (b-2 to b-24)						
	1) Direct construction cost		LS	1	0	5.3	5.3
	VAT, 20 %				0	1.1	1.1
	sub total a)				0	6.4	6.4
	2) Land Acquisition and Compensation Cost	(T100/m2)	m2	8,800	0	0.0	0.0
	3) Administration Expenses, 5 % of sub total a)				0	0.3	0.3
	4) Engineerinf Services Cost w/VAT, 10 % of sub total a)				0	0.6	0.6
	5) Contingency, 10 % of sub total a)				0	0.6	0.6
	Total cost of Project A				0	8.0	8.0

US$1.0=T144.0=JY108.0 unit:million

Cost code	Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
					Foreign Currency	Local Currency	Total, equivalent
20-8	Bridge (f-3 to f-15)						
	1) Direct construction cost		LS	1	0	78.9	78.9
	VAT, 20 %				0	15.8	15.8
	sub total a)				0	94.7	94.7
	2) Land Acquisition and Compensation Cost	(T100/m2)	m2	64,320	0	0.0	0.0
	3) Administration Expenses, 5 % of sub total a)				0	4.7	4.7
	4) Engineerinf Services Cost w/VAT, 10 % of sub total a)				0	9.5	9.5
	5) Contingency, 10 % of sub total a)				0	9.5	9.5
	Total cost of Project A				0	118.4	118.4

US$1.0=T144.0=JY108.0 unit:million

Cost code	Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
					Foreign Currency	Local Currency	Total, equivalent
20-9	Tunnel (t-1)						
	1) Direct construction cost		LS	1	0	30.0	30.0
	VAT, 20 %				0	6.0	6.0
	sub total a)				0	36.0	36.0
	2) Land Acquisition and Compensation Cost	(T100/m2)	m2	20,000	0	0.0	0.0
	3) Administration Expenses, 5 % of sub total a)				0	1.8	1.8
	4) Engineerinf Services Cost w/VAT, 10 % of sub total a)				0	3.6	3.6
	5) Contingency, 10 % of sub total a)				0	3.6	3.6
	Total cost of Project A				0	45.0	45.0

US$1.0=T144.0=JY108.0 unit:million

Cost code	Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
					Foreign Currency	Local Currency	Total, equivalent
20-12	LRT (L-3)						
	1) Direct construction cost		LS	1	0.0	157.5	157.5
	VAT, 20 %				0.0	31.5	31.5
	sub total a)				0.0	189.0	189.0
	2) Land Acquisition and Compensation Cost	(T100/m2)	m2	46,000	0.0	0.0	0.0
	3) Administration Expenses, 5 % of sub total a)				0.0	9.5	9.5
	4) Engineerinf Services Cost w/VAT, 10 % of sub total a)				0.0	18.9	18.9
	5) Contingency, 10 % of sub total a)				0.0	18.9	18.9
	Total cost of Project A				0.0	236.3	236.3

US$1.0=T144.0=JY108.0 unit:million

Cost code	Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
					Foreign Currency	Local Currency	Total, equivalent
20-14	Terminal (T-2)						
	1) Direct construction cost		LS	1	0	0.3	0.3
	VAT, 20 %				0	0.1	0.1
	sub total a)				0	0.4	0.4
	2) Land Acquisition and Compensation Cost	(T100/m2)	m2	3,000	0	0.0	0.0
	3) Administration Expenses, 5 % of sub total a)				0	0.0	0.0
	4) Engineerinf Services Cost w/VAT, 10 % of sub total a)				0	0.0	0.0
	5) Contingency, 10 % of sub total a)				0	0.0	0.0
	Total cost of Project A				0	0.5	0.5

US$1.0=T144.0=JY108.0 unit:million

Cost code	Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
					Foreign Currency	Local Currency	Total, equivalent
20-18	Traffic management						
	1) Direct construction cost		LS	1	0	0.7	0.7
	VAT, 20 %				0	0.1	0.1
	sub total a)				0	0.8	0.8
	2) Land Acquisition and Compensation Cost	(T100/m2)	m2	3,860	0	0.0	0.0
	3) Administration Expenses, 5 % of sub total a)				0	0.0	0.0
	4) Engineerinf Services Cost w/VAT, 10 % of sub total a)				0	0.1	0.1
	5) Contingency, 10 % of sub total a)				0	0.1	0.1
	Total cost of Project A				0	1.1	1.1

Table O.4.14 (2) Financial Cost Estimate Sheet for Water Resources Sector, Phase III (2021-2030)

US$1.0=T144.0=JY108.0 unit:million

Cost code	Sector / District / Cost Items	Unit	Quantity	Investment Cost (US$)		
				Foreign Currency	Local Currency	Total, equivalent
30-1	**IKC-Ishim Pipeline Project**					
	1) Direct construction cost	LS	1	0	17.4	17.4
	VAT, 20 %			0	3.5	3.5
	sub total a)			0	20.9	20.9
	2) Land Acquisition and Compensation Cost, 1 % of sub total a)	LS	1	0	0.2	0.2
	3) Administration Expenses, 5 % of sub total a)	LS	1	0	1.0	1.0
	4) Engineerinf Services Cost w/VAT, 10 % of sub total a)	LS	1	0	2.1	2.1
	5) Contingency, 10 % of sub total a)	LS	1	0	2.1	2.1
	Total cost of Project A			0	26.3	26.3

Table O.4.14 (3) Financial Cost Estimate Sheet for Water Supply Sector, Phase III (2021-2030)

US$1.0=T144.0=JY108.0 unit:million

Cost code		Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
						Foreign Currency	Local Currency	Total, equivalent
40-6	Water Supply - 3rd Stage							
	1)	Direct construction cost		LS	1	0	55.8	55.8
		VAT, 20 %				0	11.2	11.2
		sub total a)				0	67.0	67.0
	2)	Land Acquisition and Compensation Cost	(T100/m2)	m2	80,000	0	0.1	0.1
	3)	Administration Expenses, 5 % of sub total a)				0	3.3	3.3
	4)	Engineerinf Services Cost w/VAT, 5 % of sub total a)				0	3.3	3.3
	5)	Contingency, 10 % of sub total a)				0	6.7	6.7
		Total cost of Project A				0	80.4	80.4

Table O.4.14 (4) Financial Cost Estimate Sheet for Water Supply Sector, Phase III (2021-2030)

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items	Unit	Quantity	Investment Cost (US$)		
						Foreign Currency	Local Currency	Total, equivalent
50-8	**Sewerage Treatment Plant Expansion (2)**							
	1)		Direct construction cost	LS	1	0	21.0	21.0
			VAT, 20 %			0	4.2	4.2
			sub total a)			0	25.2	25.2
	2)		Land Acquisition and Compensation Cost	m2	10,000	0	0.0	0.0
	3)		Administration Expenses, 5 % of sub total a)			0	1.3	1.3
	4)		Engineerinf Services Cost w/VAT, 10 % of sub total a)			0	2.5	2.5
	5)		Contingency, 10 % of sub total a)			0	2.5	2.5
			Total cost of Project A			0	31.5	31.5

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items	Unit	Quantity	Investment Cost (US$)		
						Foreign Currency	Local Currency	Total, equivalent
50-9	**Sewerage Treatment Plant Rehabilitation (full scale)**							
	1)		Direct construction cost	LS	1	0	10.0	10.0
			VAT, 20 %			0	2.0	2.0
			sub total a)			0	12.0	12.0
	2)		Land Acquisition and Compensation Cost	m2	0	0	0.0	0.0
	3)		Administration Expenses, 5 % of sub total a)			0	0.6	0.6
	4)		Engineerinf Services Cost w/VAT, 10 % of sub total a)			0	1.2	1.2
	5)		Contingency, 10 % of sub total a)			0	1.2	1.2
			Total cost of Project A			0	15.0	15.0

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items	Unit	Quantity	Investment Cost (US$)		
						Foreign Currency	Local Currency	Total, equivalent
50-10	**Sewerage CollectionSystem Expansion (3)**							
	1)		Direct construction cost	LS	1	0	21.8	21.8
			VAT, 20 %			0	4.4	4.4
			sub total a)			0	26.2	26.2
	2)		Land Acquisition and Compensation Cost	m2	36,100	0	0.0	0.0
	3)		Administration Expenses, 5 % of sub total a)			0	1.3	1.3
	4)		Engineerinf Services Cost w/VAT, 10 % of sub total a)			0	2.6	2.6
	5)		Contingency, 10 % of sub total a)			0	2.6	2.6
			Total cost of Project A			0	32.7	32.7

Table O.4.14 (5) Financial Cost Estimate Sheet for Storm Water Drainage Sector, Phase III (2021-2030)

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
							Foreign Currency	Local Currency	Total, equivalent
60-5	Project for the Stormwater Drainage Development								
	1)	Direct construction cost			LS	1	0	2.2	2.2
			VAT, 20 %				0	0.4	0.4
			sub total a)				0	2.6	2.6
	2)	Land Acquisition and Compensation Cost		(T200/m2)	m2	50,000	0	0.1	0.1
	3)	Administration Expenses, 5 % of sub total a)					0	0.1	0.1
	4)	Engineerinf Services Cost w/VAT, 10 % of sub total a)					0	0.3	0.3
	5)	Contingency, 10 % of sub total a)					0	0.3	0.3
		Total cost of Project A					0	3.4	3.4

Table O.4.14 (6) Financial Cost Estimate Sheet for Flood protection Sector, Phase III (2021-2030)

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
							Foreign Currency	Local Currency	Total, equivalent
70-6	Ishim River improvement, L= km (2nd ring road to 3rd ring road)								
	1)	Direct construction cost			LS	1	0	16.1	16.1
			VAT, 20 %				0	3.2	3.2
			sub total a)				0	19.3	19.3
	2)	Land Acquisition and Compensation Cost					0	0.0	0.0
	3)	Administration Expenses, 5 % of sub total a)					0	1.0	1.0
	4)	Engineerinf Services Cost w/VAT, 10 % of sub total a)					0	1.9	1.9
	5)	Contingency, 10 % of sub total a)					0	1.9	1.9
		Total cost of Project A					0	24.2	24.2

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
							Foreign Currency	Local Currency	Total, equivalent
70-7	Construction of Flood Regulating Reservoir, 120 km2								
	1)	Direct construction cost			LS	1	0	8.1	8.1
			VAT, 20 %				0	1.6	1.6
			sub total a)				0	9.7	9.7
	2)	Land Acquisition and Compensation Cost		(T10/m2)	ha	12,000	0	8.3	8.3
	3)	Administration Expenses, 5 % of sub total a)					0	0.5	0.5
	4)	Engineerinf Services Cost w/VAT, 10 % of sub total a)					0	1.0	1.0
	5)	Contingency, 10 % of sub total a)					0	1.0	1.0
		Total cost of Project A					0	20.5	20.5

Table O.4.14 (7) Financial Cost Estimate Sheet for Power and Heat Energy Sector, Phase III (2021-2030)

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
							Foreign Currency	Local Currency	Total, equivalent
80-11	**Construction of 110 kV Transmission Line and Substation**								
	1)	Direct construction cost			LS	1	0	6.4	6.4
			VAT, 20 %				0	1.3	1.3
			sub total a)				0	7.7	7.7
	2)	Land Acquisition and Compensation Cost		(T200/m2)	40,100		0	0.1	0.1
	3)	Administration Expenses, 5 % of sub total a)					0	0.4	0.4
	4)	Engineerinf Services Cost w/VAT, 5 % of sub total a)					0	0.4	0.4
	5)	Contingency, 10 % of sub total a)					0	0.8	0.8
		Total cost of Project A					0	9.3	9.3

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
							Foreign Currency	Local Currency	Total, equivalent
80-12	**Natural Gas Firing Combined Cycle Plant**								
	1)	Direct construction cost			LS	1	0	140.5	140.5
			VAT, 20 %				0	28.1	28.1
			sub total a)				0	168.6	168.6
	2)	Land Acquisition and Compensation Cost		(T200/m2)	10,000		0	0.0	0.0
	3)	Administration Expenses, 5 % of sub total a)					0	8.4	8.4
	4)	Engineerinf Services Cost w/VAT, 5 % of sub total a)					0	8.4	8.4
	5)	Contingency, 10 % of sub total a)					0	16.9	16.9
		Total cost of Project A					0	202.3	202.3

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
							Foreign Currency	Local Currency	Total, equivalent
80-13	**Construction of One (1) Heat Center, Extension of Four (4) Heat Center**								
	and Related Pipelines on the Left Bank of Ishim River								
	1)	Direct construction cost			LS	1	0	49.3	49.3
			VAT, 20 %				0	9.9	9.9
			sub total a)				0	59.2	59.2
	2)	Land Acquisition and Compensation Cost		(T200/m2)	m2	10,000	0	0.0	0.0
	3)	Administration Expenses, 5 % of sub total a)					0	3.0	3.0
	4)	Engineerinf Services Cost w/VAT, 5 % of sub total a)					0	3.0	3.0
	5)	Contingency, 10 % of sub total a)					0	5.9	5.9
		Total cost of Project A					0	71.0	71.0

Table O.4.14 (8) Financial Cost Estimate Sheet for Power and Heat Energy Sector, Phase III (2021-2030)

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
							Foreign Currency	Local Currency	Total, equivalent
90-2	Gas Supply Network Expansion Project (2)								
	1)	Direct construction cost			LS	1	0.0	8.5	8.5
			VAT, 20 %				0.0	0.0	0.0
			sub total a)				0.0	8.5	8.5
	2)	Land Acquisition and Compensation Cost		(T200/m2)	m2	210,000	0.0	0.3	0.3
	3)	Administration Expenses, 5 % of sub total a)					0.0	0.4	0.4
	4)	Engineerinf Services Cost w/VAT, 10 % of sub total a)					0.0	0.9	0.9
	5)	Contingency, 10 % of sub total a)					0.0	0.9	0.9
		Total cost OF Project					0.0	10.9	10.9

Table O.4.14 (9) Financial Cost Estimate Sheet for Telecommunication Sector, Phase III (2021-2030)

US$1.0=T144.0=JY108.0 unit:million

Cost code			Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
							Foreign Currency	Local Currency	Total, equivalent
100-2	Astana New Local Telecommunication Network (3)								
	1)	Direct construction cost			LS	1	0.0	38.1	38.1
			VAT, 20 %				0.0	0.0	0.0
			sub total a)				0.0	38.1	38.1
	2)	Land Acquisition and Compensation Cost			LS	1	0.0	0.0	0.0
	3)	Administration Expenses, 5 % of sub total a)			LS	1	0.0	1.9	1.9
	4)	Engineerinf Services Cost w/VAT, 10 % of sub total a)			LS	1	0.0	3.8	3.8
	5)	Contingency, 10 % of sub total a)			LS	1	0.0	3.8	3.8
		Total cost of Project					0.0	47.6	47.6

Table O.4.14 (10) Financial Cost Estimate Sheet for Solid Waste Sector, Phase III (2021-2030)

US$1.0=T144.0=JY108.0 unit:million

Cost code		Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
						Foreign Currency	Local Currency	Total, equivalent
110-1	Landfill-2 Project (phase 2)							
	1)	Direct construction cost		LS	1	0	15.5	15.5
		VAT, 20 %				0	3.1	3.1
		sub total a)				0	18.6	18.6
	2)	Land Acquisition and Compensation Cost	(T200/m2)	ha	46	0	0.6	0.6
	3)	Administration Expenses, 5 % of sub total a)				0	0.9	0.9
	4)	Engineerinf Services Cost w/VAT, 10 % of sub total a)				0	1.9	1.9
	5)	Contingency, 10 % of sub total a)				0	1.9	1.9
		Total cost of Project				0	23.9	23.9

US$1.0=T144.0=JY108.0 unit:million

Cost code		Sector / District / Cost Items		Unit	Quantity	Investment Cost (US$)		
						Foreign Currency	Local Currency	Total, equivalent
110-6	MSW Transfer station							
	1)	Direct construction cost		LS	1	0	2.5	2.5
		VAT, 20 %				0	0.5	0.5
		sub total a)				0	3.0	3.0
	2)	Land Acquisition and Compensation Cost		ha	0	0	0.0	0.0
	3)	Administration Expenses, 5 % of sub total a)				0	0.2	0.2
	4)	Engineerinf Services Cost w/VAT, 5 % of sub total a)				0	0.2	0.2
	5)	Contingency, 10 % of sub total a)				0	0.3	0.3
		Total cost of Project				0	3.6	3.6

Table O.4.15 Cost Estimate Sheet for Urban Development, Central Planning Region, Phase I, II and III

Cost Code		District / Zoning		Total Area to 2030	Development Cost of Residential Area by Phase										Total 2010 to 2030
					Total	2010			2020			2030			
					requires	area	unit cost	amount	area	unit cost	amount	2030	unit cost	amount	
				ha	1,000m2	1,000m2	US$/m2	US$1,000	1,000m2	US$/m2	US$1,000	1,000m2	US$/m2	US$1,000	US$1,000
10-1	Central Planning Region			1,689	1,185	407		122,067	574		172,220	204		61,193	355,480
	10-1-1	Residential District	3	385	350	0		0	146		43,850	204		61,193	105,043
		1) low density			0	0	200	0	0	200	0	0	200	0	0
		2) medium density			350	0	300	0	146	300	43,850	204	300	61,193	105,043
		3) high density			0	0	500	0	0	500	0	0	500	0	0
	10-1-2	Residential District	4A	563	336	183		55,048	153		45,811	0		0	100,858
		1) low density			0	0	200	0	0	200	0	0	200	0	0
		2) medium density			336	183	300	55,048	153	300	45,811	0	300	0	100,858
		3) high density			0	0	500	0	0	500	0	0	500	0	0
	10-1-3	Residential District	5	357	278	124		37,255	154		46,134	0		0	83,389
		1) low density			0	0	200	0	0	200	0	0	200	0	0
		2) medium density			278	124	300	37,255	154	300	46,134	0	300	0	83,389
		3) high density			0	0	500	0	0	500	0	0	500	0	0
	10-1-4	Residential District	6	384	221	99		29,765	121		36,425	0		0	66,190
		1) low density			0	0	200	0	0	200	0	0	200	0	0
		2) medium density			221	99	300	29,765	121	300	36,425	0	300	0	66,190
		3) high density			0	0	500	0	0	500	0	0	500	0	0
	note 1)								note 2)						
	low density	10-100 person/ha, detached house 1-2 stories							m2/person in gross			(calculation basis of residential floor)			
	medium density	100-250 person/ha, apartment till 5 stories wo/elevator							18	2010		zero count for population decrease			
	high density	250-350 person/ha, high-rise building 6 stories or more w/elevator							22	2020		costed by demolition work			
									25	2030					

Cost Code		District / Zoning		Total Area to 2030	Development Cost of Office Floor Area by Phase										Total 2010 to 2030
					total	2010			2020			2030			
					requires	area	unit cost	amount	area	unit cost	amount	area	unit cost	amount	
				ha	1,000m2	1,000m2	US$/m2	US$1,000	1,000m2	US$/m2	US$1,000	1,000m2	US$/m2	US$1,000	US$1,000
10-1	Central Planning Region			1,689	532	33		9,767	384		115,330	116		34,651	159,749
	10-1-1	Residential District	3	385	222	0	300	0	164	300	49,219	58	300	17,278	
	10-1-2	Residential District	4A	563	278	33	300	9,767	191	300	57,323	55	300	16,417	
	10-1-3	Residential District	5	357	17	0	300	0	16	300	4,667	2	300	453	
	10-1-4	Residential District	6	384	15	0	300	0	14	300	4,122	2	300	503	
												zero count for floor area decrease			
												costed by demolition work			

Cost Code		District / Zoning		Total Area to 2030	Development Cost of Commercial Area by Phase										Total 2010 to 2030
					total	2010			2020			2030			
					requires	area	unit cost	amount	area	unit cost	amount	area	unit cost	amount	
				ha	1,000m2	1,000m2	US$/m2	US$1,000	1,000m2	US$/m2	US$1,000	1,000m2	US$/m2	US$1,000	US$1,000
10-1	Central Planning Region			1,689	79	10		2,061	11		2,266	57		11,495	15,821
	10-1-1	Residential District	3	385	18	0	200	93	3	200	665	14	200	2,812	
	10-1-2	Residential District	4A	563	34	6	200	1,182	3	200	539	25	200	5,063	
	10-1-3	Residential District	5	357	14	2	200	407	3	200	548	9	200	1,756	
	10-1-4	Residential District	6	384	14	2	200	379	3	200	513	9	200	1,864	
												zero count for floor area decrea			
												costed by demolition work			

10-1 Cost Summary of Residential, Office and Commercial Floor Area & OM Cost for Central Planning Region

Cost Code		District / Zoning		Total Area to 2030	Development Cost for Residential, Office & Commercial Area by Phase					Maintenance Cost 1 % of development cost		
					2010	2020	2030	total		2010	2020	2030
				ha	US$1,000	US$1,000	US$1,000	US$1,000		US$1,00	US$1,000	US$1,000
10-1	Central Planning Region			1,689	133,895	289,816	107,338	531,049		1,339	4,237	5,310
	10-1-1	Residential District	3	385	93	93,735	81,282	175,110		1	938	1,751
		Residential area			0	43,850	61,193	105,043				
		Office floor area			0	49,219	17,278	66,497				
		Commercial area			93	665	2,812	3,570				
	10-1-2	Residential District	4A	563	65,997	103,673	21,479	191,149		660	1,697	1,911
		Residential area			55,048	45,811	0	100,858				
		Office floor area			9,767	57,323	16,417	83,507				
		Commercial area			1,182	539	5,063	6,784				
	10-1-3	Residential District	5	357	37,662	51,349	2,209	91,219		377	890	912
		Residential area			37,255	46,134	0	83,389				
		Office floor area			0	4,667	453	5,120				
		Commercial area			407	548	1,756	2,711				
	10-1-4	Residential District	6	384	30,143	41,061	2,367	73,571		301	712	736
		Residential area			29,765	36,425	0	66,190				
		Office floor area			0	4,122	503	4,625				
		Commercial area			379	513	1,864	2,756				

Table O.4.16 Cost Estimate Sheet for Urban Development, Northern Planning region, Phase I, II and III (1/2)

Cost Code		District / Zoning	Total Area to 2030	Development Cost of Residential Area by Phase										Total 2010 to 2030
				total	2010			2020			2030			
				requires	area	unit cost	amount	area	unit cost	amount	area	unit cost	amount	
			ha	1,000m2	1,000m2	US$/m2	US$1,000	1,000m2	US$/m2	US$1,000	1,000m2	US$/m2	US$1,000	US$1,000
10-2	Northern Planning Region		22,614				0			0			0	0
	10-2-1	North industrial district	2,146	0	0		0	0		0	0		0	0
		1) low density		0	0	200	0	0	200	0	0	200	0	0
		2) medium density		0	0	300	0	0	300	0	0	300	0	0
		3) high density		0	0	500	0	0	500	0	0	500	0	0
	10-2-2	Central industrial distric	3,353	0	0		0	0		0	0		0	0
		1) low density		0	0	200	0	0	200	0	0	200	0	0
		2) medium density		0	0	300	0	0	300	0	0	300	0	0
		3) high density		0	0	500	0	0	500	0	0	500	0	0
	10-2-3	Planning district I	6,302											
		1) low density		0	0	200	0	0	200	0	0	200	0	0
		2) medium density		0	0	300	0	0	300	0	0	300	0	0
		3) high density		0	0	500	0	0	500	0	0	500	0	0
	10-2-4	Planning district II	3,710											
		1) low density		0	0	200	0	0	200	0	0	200	0	0
		2) medium density		0	0	300	0	0	300	0	0	300	0	0
		3) high density		0	0	500	0	0	500	0	0	500	0	0
	10-2-5	Planning district III	2,927											
		1) low density		0	0	200	0	0	200	0	0	200	0	0
		2) medium density		0	0	300	0	0	300	0	0	300	0	0
		3) high density		0	0	500	0	0	500	0	0	500	0	0
	10-2-6	Planning district IV	4,176											
		1) low density		0	0	200	0	0	200	0	0	200	0	0
		2) medium density		0	0	300	0	0	300	0	0	300	0	0
		3) high density		0	0	500	0	0	500	0	0	500	0	0
	10-2-7	Planning district IV, service												
		1) low density		0	0	200	0	0	200	0	0	200	0	0
		2) medium density		0	0	300	0	0	300	0	0	300	0	0
		3) high density		0	0	500	0	0	500	0	0	500	0	0
	10-2-8	Planning district IV, cargo center												
		1) low density		0	0	200	0	0	200	0	0	200	0	0
		2) medium density		0	0	300	0	0	300	0	0	300	0	0
		3) high density		0	0	500	0	0	500	0	0	500	0	0
	10-2-9	Settlement Zheleznodoezhny												
		1) low density												
		2) medium density												
		3) high density												
	note 1)				0			note 2)						
	low density	10-100 person/ha, detached house 1-2 stories						m2/person in gross			(calculation basis of residential floor)			
	medium density	100-250 person/ha, apartment till 5 stories wo/elevator						18	2010		zero count for population decrease			
	high density	250-350 person/ha, high-rise building 6 stories or more w/elevator						22	2020		costed by demolition work			
								25	2030					

Cost Code		District / Zoning	Total Area to 2030	Development Cost of Office Floor Area by Phase										Total 2010 to 2030
				total	2010			2020			2030			
				requires	area	unit cost	amount	area	unit cost	amount	area	unit cost	amount	
			ha	1,000m2	1,000m2	US$/m2	S$1,00	1,000m2	US$/m2	S$1,00	1,000m2	US$/m2	US$1,000	US$1,000
10-2	Northern Planning Region		22,614	207	21		6,164	110		33,059	76		22,920	
	10-2-1	North industrial district	2,146	78	0	300	0	48	300	14,534	30	300	9,009	
	10-2-2	Central industrial distric	3,353	96	0	300	0	55	300	16,566	41	300	12,188	
	10-2-3	Planning district I	6,302	4	4	300	1,068	0	300	0	0	300	0	
	10-2-4	Planning district II	3,710	0	0	300	0	0	300	0	0	300	0	
	10-2-5	Planning district III	2,927	0	0	300	0	0	300	0	0	300	0	
	10-2-6	Planning district IV	4,176	0	0	300	0	0	300	0	0	300	0	
	10-2-7	Planning district IV ser.		2	2	300	540	0	300	0	0	300	0	
	10-2-8	Planning district IV cargo.		27	15	300	4,556	7	300	1,959	6	300	1,724	
	10-2-9	Settlement Zheleznodoezhny												
											zero count for floor area decrease			
											costed by demolition work			

Cost Code		District / Zoning	Total Area to 2030	Development Cost of Commercial Area by Phase										Total 2010 to 2030
				total	2010			2020			2030			
				requires	area	unit cost	amount	area	unit cost	amount	area	unit cost	amount	
			ha	1,000m2	1,000m2	US$/m2	S$1,00	1,000m2	US$/m2	S$1,00	1,000m2	US$/m2	US$1,000	US$1,000
10-2	Northern Planning Region		22,614	3	1		152	0		36	2		361	549
	10-2-1	North industrial district	2,146	1	0	200	0	0	200	23	1	200	225	
	10-2-2	Central industrial distric	3,353	2	1	200	152	0	200	14	1	200	136	
	10-2-3	Planning district I	6,302	0	0	200	0	0	200	0	0	200	0	
	10-2-4	Planning district II	3,710	0	0	200	0	0	200	0	0	200	0	
	10-2-5	Planning district III	2,927	0	0	200	0	0	200	0	0	200	0	
	10-2-6	Planning district IV	4,176	0	0	200	0	0	200	0	0	200	0	
	10-2-7	Planning district IV ser.		0	0	200	0	0	200	0	0	200	0	
	10-2-8	Planning district IV cargo.		0	0	200	0	0	200	0	0	200	0	
	10-2-9	Settlement Zheleznodoezhny												
											zero count for floor area decrease			
											costed by demolition work			

Table O.4.16 Cost Estimate Sheet for Urban Development, Northern Planning region, Phase I, II and III (2/2)

10-2 Cost Summary of Residential, Office and Commercial Floor Area and OM Cost in Northern Planning Region														
Cost Code		District / Zoning	Total Area to 2030	Development Cost for Residential, Office and Commercial Area by Phase								Maintenance Cost 1 % of development cost		
				2010		2020		2030		total		2010	2020	2030
			ha	S$1,000		US$1,00		S$1,000		US$1,00		US$1,000	US$1,000	US$1,000
10-2	Northern Planning Region		22,614	6,316		33,095		23,282		62,693		63	394	627
	10-2-1	North Industrial District	2,146	0		14,557		9,234		23,790		0	146	238
		Residential area		0		0		0		0				
		Office floor area		0		14,534		9,009		23,543				
		Commercial area		0		23		225		247				
	10-2-2	Central industrial distric	3,353	152		16,579		12,324		29,055		2	167	291
		Residential area		0		0		0		0				
		Office floor area		0		16,566		12,188		28,753				
		Commercial area		152		14		136		302				
	10-2-3	Planning District I	6,302	1,068		0		0		1,068		11	11	11
		Residential area		0		0				0				
		Office floor area		1,068		0		0		1,068				
		Commercial area		0		0		0		0				
	10-2-4	Planning District II	3,710	0		0		0		0		0	0	0
		Residential area		0		0				0				
		Office floor area		0		0		0		0				
		Commercial area		0		0		0		0				
	10-2-5	Planning district III	2,927	0		0		0		0		0	0	0
		Residential area		0		0				0				
		Office floor area		0		0		0		0				
		Commercial area		0		0		0		0				
	10-2-6	Planning district IV	4,176	0		0		0		0		0	0	0
		Residential area		0		0				0				
		Office floor area		0		0		0		0				
		Commercial area		0		0		0		0				
	10-2-7	Planning district IV ser.		540		0		0		540		5	5	5
		Residential area		0		0				0				
		Office floor area		540		0		0		540				
		Commercial area		0		0		0		0				
	10-2-8	Planning district IV cargo.		4,556		1,959		1,724		8,240		46	65	82
		Residential area		0		0				0				
		Office floor area		4,556		1,959		1,724		8,240				
		Commercial area		0		0		0		0				
	10-2-9	Settlement Zheleznodoezhny												

Table O.4.17 Cost Estimate Sheet for Urban Development, Southeastern Planning Region, Phase I, II and III (1/2)

Cost Cod	District / Zoning	Total Area to 2030	Development Cost of Residential Area by Phase										Total 2010 to 2030
			total	2010			2020			2030			
			requires	area	unit cost	amount	area	unit cos	amount	area	unit cost	amount	
		ha	1,000 m	1,000m2	US$/m2	US$1,00	1,000m2	US$/m2	S$1,00	1,000m2	US$/m2	S$1,00	US$1,000
10	Southeastern Planning Region	11,270	3,974	2,385		922,585	1,588		417,659	0		0	1,340,244
10-3-1	Residential District 7	562	683	617		308,574	66		19,800	0		0	328,374
	1) low density		0	0	200	0	0	200	0	0	200	0	0
	2) medium density		66	0	300	0	66	300	19,800	0	300	0	19,800
	3) high density		617	617	500	308,574	0	500	0	0	500	0	308,574
10-3-2	Residential District 8	395	11	11		3,300	0		0	0		0	3,300
	1) low density		0	0	200	0	0	200	0	0	200	0	0
	2) medium density		11	11	300	3,300	0	300	0	0	300	0	3,300
	3) high density		0	0	500	0	0	500	0	0	500	0	0
10-3-3	Residential District 9	552	477	477		124,623	0		0	0		0	124,623
	1) low density		183	183	200	36,673	0	200	0	0	200	0	36,673
	2) medium density		293	293	300	87,950	0	300	0	0	300	0	87,950
	3) high density		0	0	500	0	0	500	0	0	500	0	0
10-3-4	Residential District 10	213	195	80		16,096	114		22,880	0		0	38,976
	1) low density		195	80	200	16,096	114	200	22,880	0	200	0	38,976
	2) medium density		0	0	300	0	0	300	0	0	300	0	0
	3) high density		0	0	500	0	0	500	0	0	500	0	0
10-3-5	Ind. District sta. 40	752	302	136		40,770	166		33,220	0		0	73,990
	1) low density		166	0	200	0	166	200	33,220	0	200	0	33,220
	2) medium density		136	136	300	40,770	0	300	0	0	300	0	40,770
	3) high density		0	0	500	0	0	500	0	0	500	0	0
10-3-6	Residential District 17	715	1,287	1,064		429,223	223		89,648	0		0	518,870
	1) low density		47	47	200	9,432	0	200	0	0	200	0	9,432
	2) medium density		554	444	300	133,213	110	300	32,855	0	300	0	166,067
	3) high density		687	573	500	286,578	114	500	56,793	0	500	0	343,371
10-3-7	Residential District 18	902	625	0		0	625		147,134	0		0	147,134
	1) low density		402	0	200	0	402	200	80,494	0	200	0	80,494
	2) medium density		222	0	300	0	222	300	66,640	0	300	0	66,640
	3) high density		0	0	500	0	0	500	0	0	500	0	0
10-3-8	Residential District 19	783	394	0		0	394		104,977	0		0	104,977
	1) low density		133	0	200	0	133	200	26,563	0	200	0	26,563
	2) medium density		261	0	300	0	261	300	78,415	0	300	0	78,415
	3) high density		0	0	500	0	0	500	0	0	500	0	0
10-3-9	Planning district V	6,396	0	0		0	0		0	0		0	0
	1) low density		0	0	200	0	0	200	0	0	200	0	0
	2) medium density		0	0	300	0	0	300	0	0	300	0	0
	3) high density		0	0	500	0	0	500	0	0	500	0	0
10-3-1	Settlement Promyshlenny												
10-3-1	Settlement Internationalnoe												
10-3-1	Settlement Michurino												
10-3-1	Settlement Kuygenzhar												
note 1)				0			note 2)						
low density	10-100 person/ha, detached house 1-2 stories						m2/person in gross			(calculation basis of residential floor)			
medium density	100-250 person/ha, apartment till 5 stories wo/elevator						18	2010		zero count for population decrease			
high density	250-350 person/ha, high-rise building 6 stories or more w/elevator						22	2020		costed by demolition work			
							25	2030					

Cost Cod	District / Zoning	Total Area to 2030	Development Cost of Office Floor Area by Phase										Total 2010 to 2030
			total	2010			2020			2030			
			requires	area	unit cost	amount	area	unit cos	amount	area	unit cost	amount	
		ha	1,000m	1,000m2	US$/m2	US$1,00	1,000m2	US$/m2	S$1,00	1,000m2	US$/m2	S$1,00	US$1,000
10	Southeastern Planning Region	11,270	396	227		68,089	158		47,360	11		3,383	
10-3-1	Residential District 7	562	61	41	300	12,222	17	300	5,186	3	300	884	
10-3-2	Residential District 8	395	6	0	300	0	5	300	1,614	1	300	312	
10-3-3	Residential District 9	552	54	48	300	14,495	5	300	1,529	1	300	295	
10-3-4	Residential District 10	213	21	10	300	2,882	11	300	3,203	0	300	111	
10-3-5	Ind. District sta. 40	752	30	25	300	7,391	4	300	1,109	2	300	611	
10-3-6	Residential District 17	715	129	98	300	29,378	29	300	8,752	2	300	701	
10-3-7	Residential District 18	902	54	0	300	0	53	300	15,825	1	300	287	
10-3-8	Residential District 19	783	34	0	300	0	33	300	9,988	1	300	181	
10-3-9	Planning district V	6,396	6	6	300	1,722	1	300	154	0	300	0	
10-3-1	Settlement Promyshlenny												
10-3-1	Settlement Internationalnoe												
10-3-1	Settlement Michurino												
10-3-1	Settlement Kuygenzhar												
										zero count for floor area decrease			
										costed by demolition work			

Table O.4.17 Cost Estimate Sheet for Urban Development, Southeastern Planning Region, Phase I, II and III (2/2)

Cost Cod	District / Zoning	Total Area to 2030	Development Cost of Commercial Area by Phase										Total 2010 to 2030
			total	2010			2020			2030			
			requires	area	unit cost	amount	area	unit cos	amount	area	unit cost	amount	
		ha	1,000m	1,000m2	US$/m2	US$1,00	1,000m2	US$/m2	S$1,00	1,000m2	US$/m2	S$1,00	US$1,000
10	Southeastern Planning Region	11,270	138	49		9,806	30		6,052	58		11,687	27,544
10-3-1	Residential District 7	562	29	10	200	2,068	3	200	555	16	200	3,276	5,899
10-3-2	Residential District 8	395	9	1	200	185	1	200	233	7	200	1,342	1,760
10-3-3	Residential District 9	552	21	12	200	2,378	0	200	45	8	200	1,679	4,103
10-3-4	Residential District 10	213	3	1	200	116	1	200	220	1	200	220	555
10-3-5	Ind. District sta. 40	752	3	2	200	362	0	200	20	1	200	201	584
10-3-6	Residential District 17	715	43	22	200	4,416	6	200	1,258	15	200	2,960	8,634
10-3-7	Residential District 18	902	17	0	200	0	11	200	2,271	6	200	1,136	3,407
10-3-8	Residential District 19	783	11	0	200	0	7	200	1,433	4	200	717	2,150
10-3-9	Planning district V	6,396	2	1	200	280	0	200	16	1	200	156	452
10-3-1	Settlement Promyshlenny												
10-3-1	Settlement Internationalnoe												
10-3-1	Settlement Michurino												
10-3-1	Settlement Kuygenzhar												
										zero count for floor area decrease			
										costed by demolition work			

10-3 Cost Summary of Residential, Office and Commercial Floor Aream and OM Cost in Southeastern Planning Region

Cost Cod	District / Zoning	Total Area to 2030	Development Cost for Residential, Office and Commercial Area by Phase			Maintenance cost 1 % of construction cost		
			2010	2020	2030	total	2010	2020	2030
		ha	US$1,000	US$1,000	S$1,000	US$1,000	US$1,000	US$1,000	US$1,000
10	Southeastern Planning Region	11,270	1,000,480	471,070	15,069	1,486,619	10,005	14,716	14,866
10-3-1	Residential District 7	562	322,864	25,541	4,160	352,565	3,229	3,484	3,526
	Residential area		308,574	19,800	0	328,374			
	Office floor area		12,222	5,186	884	18,292			
	Commercial area		2,068	555	3,276	5,899			
10-3-2	Residential District 8	395	3,485	1,847	1,654	6,986	35	53	70
	Residential area		3,300	0	0	3,300			
	Office floor area		0	1,614	312	1,926			
	Commercial area		185	233	1,342	1,760			
10-3-3	Residential District 9	552	141,496	1,575	1,975	145,045	1,415	1,431	1,450
	Residential area		124,623	0	0	124,623			
	Office floor area		14,495	1,529	295	16,319			
	Commercial area		2,378	45	1,679	4,103			
10-3-4	Residential District 10	213	19,093	26,302	331	45,727	191	454	457
	Residential area		16,096	22,880	0	38,976			
	Office floor area		2,882	3,203	111	6,196			
	Commercial area		116	220	220	555			
10-3-5	Ind. District sta. 40	752	48,523	34,349	813	83,684	485	829	837
	Residential area		40,770	33,220	0	73,990			
	Office floor area		7,391	1,109	611	9,110			
	Commercial area		362	20	201	584			
10-3-6	Residential District 17	715	463,017	99,658	3,660	566,335	4,630	5,627	5,663
	Residential area		429,223	89,648	0	518,870			
	Office floor area		29,378	8,752	701	38,831			
	Commercial area		4,416	1,258	2,960	8,634			
10-3-7	Residential District 18	902	0	165,230	1,423	166,653	0	1,652	1,667
	Residential area		0	147,134	0	147,134			
	Office floor area		0	15,825	287	16,112			
	Commercial area		0	2,271	1,136	3,407			
10-3-8	Residential District 19	783	0	116,398	898	117,296	0	1,164	1,173
	Residential area		0	104,977	0	104,977			
	Office floor area		0	9,988	181	10,169			
	Commercial area		0	1,433	717	2,150			
10-3-9	Planning district V	6,396	2,002	170	156	2,328	20	22	23
	Residential area		0	0	0	0			
	Office floor area		1,722	154	0	1,876			
	Commercial area		280	16	156	452			
10-3-1	Settlement Promyshlenny								
10-3-1	Settlement Internationalnoe								
10-3-1	Settlement Michurino								
10-3-1	Settlement Kuygenzhar								
	sub total								
	Total								

Table O.4.18 Cost Estimate Sheet for Urban Development, Southern Planning Region, Phase I, II and III (1/2)

Cost Code	District / Zoning	Total Area to 2030	Development Cost of Residential Area by Phase										Total 2010 to 2030
			total requires	2010 area	2010 unit cost	2010 amount	2020 area	2020 unit cost	2020 amount	2030 area	2030 unit cost	2030 amount	
		ha	1,000m2	1,000m2	US$/m2	US$1,000	1,000m2	US$/m2	US$1,00	1,000m2	US$/m2	US$1,000	US$1,000
10-4	**Southern Planning Region**	**24,399**	**3,930**	**471**			**1,224**			**2,235**			
10-4-1	Residential District 11	1,251	1,288	42		8,424	69		13,816	1,177		434,650	456,890
	1) low density		395	42	200	8,424	69	200	13,816	284	200	56,710	78,950
	2) medium density		344	0	300	0	0	300	0	344	300	103,103	103,103
	3) high density		550	0	500	0	0	500	0	550	500	274,838	274,838
10-4-2	Residential District 12	668	65	65		13,014	0		0	0		0	13,014
	1) low density		65	65	200	13,014	0	200	0	0	200	0	13,014
	2) medium density		0	0	300	0	0	300	0	0	300	0	0
	3) high density		0	0	500	0	0	500	0	0	500	0	0
10-4-3	Residential District 13	942	159	159		31,770	0		0	0		0	31,770
	1) low density		159	159	200	31,770	0	200	0	0	200	0	31,770
	2) medium density		0	0	300	0	0	300	0	0	300	0	0
	3) high density		0	0	500	0	0	500	0	0	500	0	0
10-4-4	Residential District 14	1,425	1,003	152		64,974	374		168,069	477		211,648	444,691
	1) low density		133	33	200	6,600	47	200	9,398	53	200	10,620	26,618
	2) medium density		85	7	300	1,971	24	300	7,333	54	300	16,065	25,369
	3) high density		785	113	500	56,403	303	500	151,338	370	500	184,963	392,704
10-4-5	Residential District 15	820	404	0		0	340		68,068	63		12,680	80,748
	1) low density		404	0	200	0	340	200	68,068	63	200	12,680	80,748
	2) medium density		0	0	300	0	0	300	0	0	300	0	0
	3) high density		0	0	500	0	0	500	0	0	500	0	0
10-4-6	Residential District 16	933	966	8		1,534	440		122,784	518		139,373	263,690
	1) low density		261	8	200	1,534	94	200	18,722	160	200	32,010	52,266
	2) medium density		705	0	300	0	347	300	104,062	358	300	107,363	211,425
	3) high density		0	0	500	0	0	500	0	0	500	0	0
10-4-7	Planning District VI (airport	1,885	0	0		0	0		0	0		0	0
	1) low density		0	0	200	0	0	200	0	0	200	0	0
	2) medium density		0	0	300	0	0	300	0	0	300	0	0
	3) high density		0	0	500	0	0	500	0	0	500	0	0
10-4-8	Planning District VII (sports)												
	1) low density												
	2) medium density			(included into university)									
	3) high density												
10-4-9	Planning District VII (univ.)	3,789	45	45		9,000	0		0	0		0	9,000
	1) low density		45	45	200	9,000	0	200	0	0	200	0	9,000
	2) medium density		0	0	300	0	0	300	0	0	300	0	0
	3) high density		0	0	500	0	0	500	0	0	500	0	0
10-4-10	Planning District VII (exhib.)												
	1) low density												
	2) medium density			(included into university)									
	3) high density												
10-4-11	Planning District VIII	12,686	0	0		0	0		0	0		0	0
	1) low density		0	0	200	0	0	200	0	0	200	0	0
	2) medium density		0	0	300	0	0	300	0	0	300	0	0
	3) high density		0	0	500	0	0	500	0	0	500	0	0
10-4-12	Settlement Prigorodnoye												
10-4-13	Settlement Telman												
note 1)				0			note 2)						
low density	10-100 person/ha, detached house 1-2 stories						m2/person in gross		(calculation basis of residential floor)				
medium density	100-250 person/ha, apartment till 5 stories wo/elevator						18	2010		zero count for population decrease			
high density	250-350 person/ha, high-rise building 6 stories or more w/elevator						22	2020		costed by demolition work			
							25	2030					

Cost Code	District / Zoning	Total Area to 2030	Development Cost of Office Floor Area by Phase										Total 2010 to 2030
			total requires	2010 area	2010 unit cost	2010 amount	2020 area	2020 unit cost	2020 amount	2030 area	2030 unit cost	2030 amount	
		ha	1,000m2	1,000m2	US$/m2	US$1,000	1,000m2	US$/m2	US$1,00	1,000m2	US$/m2	US$1,000	US$1,000
10-4	**Southern Planning Region**	**24,399**	3,179	1,784		709,958	844		327,810	551		205,200	1,242,968
10-4-1	Residential District 11	1,251	96	0	300	0	7	300	1,957	89	300	26,788	28,745
10-4-2	Residential District 12	668	3	0	300	0	3	300	855	1	300	165	1,020
10-4-3	Residential District 13	942	1,748	1,225	400	489,894	397	400	158,839	126	400	50,361	699,094
10-4-4	Residential District 14	1,425	1,144	524	400	209,702	348	400	139,238	272	400	108,672	457,612
10-4-5	Residential District 15	820	34	0	300	0	29	300	8,623	5	300	1,596	10,219
10-4-6	Residential District 16	933	78	1	300	212	37	300	11,183	40	300	11,964	23,359
10-4-7	Planning District VI (airport	1,885	29	28	300	8,438	1	300	302	0	300	0	8,739
10-4-8	Planning District VII (sports)		5	0	300	0	5	300	1,625	0	300	0	1,625
10-4-9	Planning District VII (univ.)	3,789	29	0	300	0	17	300	5,189	11	300	3,363	8,552
10-4-10	Planning District VII (exhib.)		13	6	300	1,713	0	300	0	8	300	2,291	4,004
10-4-11	Planning District VIII	12,686	0	0	300	0	0	300	0	0	300	0	0
10-4-12	Settlement Prigorodnoye		0										0
10-4-13	Settlement Telman		0										0
										zero count for floor area decrease			
										costed by demolition work			

Table O.4.18 Cost Estimate Sheet for Urban Development, Southern Planning Region, Phase I, II and III (2/2)

Cost Code		District / Zoning	Total Area to 2030	Development Cost of Commercial Area by Phase										Total 2010 to 2030
				total	2010			2020			2030			
				requires	area	unit cost	amount	area	unit cost	amount	area	unit cost	amount	
			ha	1,000m2	1,000m2	US$/m2	US$1,000	1,000m2	US$/m2	US$1,00	1,000m2	US$/m2	US$1,000	US$1,000
10-4	**Southern Planning Region**		**24,399**	310	59		11,703	97		19,399	154		27,890	58,992
	10-4-1	Residential District 11	1,251	32	0	200	30	1	200	133	31	200	6,216	6,379
	10-4-2	Residential District 12	668	6	3	200	515	1	200	141	3	200	599	1,256
	10-4-3	Residential District 13	942	162	40	200	8,087	57	200	11,427	65	200	12,920	32,434
	10-4-4	Residential District 14	1,425	73	14	200	2,860	24	200	4,847	34	200	6,802	14,509
	10-4-5	Residential District 15	820	11	0	200	0	6	200	1,238	5	200	923	2,161
	10-4-6	Residential District 16	933	25	0	200	31	8	200	1,603	17	20	330	1,964
	10-4-7	Planning District VI (airport	1,885	0	0	200	0	0	200	0	0	200	0	0
	10-4-8	Planning District VII (sports)			(included into university)									
	10-4-9	Planning District VII (univ.)	3,789	1	1	200	180	0	200	10	1	200	100	290
	10-4-10	Planning District VII (exhib.)			(included into university)									
	10-4-11	Planning District VIII	12,686	0	0	200	0	0	200	0	0	200	0	0
	10-4-12	Settlement Prigorodnoye												
	10-4-13	Settlement Telman												
											zero count for floor area decrease			
											costed by demolition work			

10-4 Cost Summary of Residential, Office, and Commercial Floor Area, and OM Cost in Southern Planning Region

Cost Code		District / Zoning	Total Area to 2030	Development Cost for Residential, Office and Commercial Area by Phase						Maintenance Cost		
										1 % of development cost		
				2010	2020		2030		total	2010	2020	2030
			ha	US$1,000	US$1,000		US$1,000		US$1,000	US$1,00	US$1,000	US$1,000
10-4	**Southern Planning Region**		**24,399**	850,376	719,946		1,031,440		2,601,763	8,504	15,703	26,018
	10-4-1	Residential District 11	1,251	8,454	15,906		467,654		492,014	85	244	4,920
		Residential area		8,424	13,816		434,650		456,890			
		Office floor area		0	1,957		26,788		28,745			
		Commercial area		30	133		6,216		6,379			
	10-4-2	Residential District 12	668	13,529	996		764		15,290	135	145	153
		Residential area		13,014	0		0		13,014			
		Office floor area		0	855		165		1,020			
		Commercial area		515	141		599		1,256			
	10-4-3	Residential District 13	942	529,751	170,266		63,281		763,297	5,298	7,000	7,633
		Residential area		31,770	0		0		31,770			
		Office floor area		489,894	158,839		50,361		699,094			
		Commercial area		8,087	11,427		12,920		32,434			
	10-4-4	Residential District 14	1,425	277,536	312,154		327,121		916,811	2,775	5,897	9,168
		Residential area		64,974	168,069		211,648		444,691			
		Office floor area		209,702	139,238		108,672		457,612			
		Commercial area		2,860	4,847		6,802		14,509			
	10-4-5	Residential District 15	820	0	77,929		15,199		93,128	0	779	931
		Residential area		0	68,068		12,680		80,748			
		Office floor area		0	8,623		1,596		10,219			
		Commercial area		0	1,238		923		2,161			
	10-4-6	Residential District 16	933	1,776	135,570		151,667		289,013	18	1,373	2,890
		Residential area		1,534	122,784		139,373		263,690			
		Office floor area		212	11,183		11,964		23,359			
		Commercial area		31	1,603		330		1,964			
	10-4-7	Planning District VI (airport	1,885	8,438	302		0		8,739	84	87	87
		Residential area		0	0		0		0			
		Office floor area		8,438	302		0		8,739			
		Commercial area		0	0		0		0			
	10-4-8	Planning District VII (sports)		0	1,625		0		1,625	0	16	16
		Residential area		0	0		0		0			
		Office floor area		0	1,625		0		1,625			
		Commercial area		0	0		0		0			
	10-4-9	Planning District VII (univ.)	3,789	9,180	5,199		3,463		17,842	92	144	178
		Residential area		9,000	0		0		9,000			
		Office floor area		0	5,189		3,363		8,552			
		Commercial area		180	10		100		290			
	10-4-10	Planning District VII (exhib.)		1,713	0		2,291		4,004	17	17	40
		Residential area		0	0		0		0			
		Office floor area		1,713	0		2,291		4,004			
		Commercial area		0	0		0		0			
	10-4-11	Planning District VIII	12,686	0	0		0		0	0	0	0
		Residential area		0	0		0		0			
		Office floor area		0	0		0		0			
		Commercial area		0	0		0		0			
	10-4-12	Settlement Prigorodnoye										
		Residential area										
		Office floor area										
		Commercial area										
	10-4-13	Settlement Telman										
		Residential area										
		Office floor area										
		Commercial area										

Table O.4.19 Cost Estimate Sheet for Urban Development, Northwestern Planning Region, Phase I, II and III

Cost Code		District / Zoning	Total Area to 2030	Development Cost of Residential Area by Phase <1										Total 2010 to 2030
				total	2010			2020			2030			
				requires	area	unit cost	amount	area	unit cost	amount	area	unit cost	amount	
			ha	1,000 m	1,000 m	US$/m2	US$1,000	1,000 m	US$/m2	US$1,00	1,000 m	US$/m2	US$1,000	US$1,000
10-5	Northwestern Planning Region		9,909	1,795	82		18,200	1,296		425,608	417		121,130	564,938
	10-5-1	Residential District 1	332	204	0		0	99		28,222	105		27,695	55,917
		1) low density		54	0	200	0	15	200	2,957	39	200	7,895	10,852
		2) medium density		150	0	300	0	84	300	25,265	66	300	19,800	45,065
		3) high density		0	0	500	0	0	500	0	0	500	0	0
	10-5-2	Residential District 2	441	595	18		5,400	266		79,807	311		93,435	178,642
		1) low density		0	0	200	0	0	200	0	0	200	0	0
		2) medium density		595	18	300	5,400	266	300	79,807	311	300	93,435	178,642
		3) high density		0	0	500	0	0	500	0	0	500	0	0
	10-5-3	West industrial district	575	64	64		12,800	0		0	0		0	12,800
		1) low density		64	64	200	12,800	0	200	0	0	200	0	12,800
		2) medium density		0	0	300	0	0	300	0	0	300	0	0
		3) high density		0	0	500	0	0	500	0	0	500	0	0
	10-5-4	Residential District 4B	685	931	0		0	931		317,579	0		0	317,579
		1) low density		202	0	200	0	202	200	40,467	0	200	0	40,467
		2) medium density		436	0	300	0	436	300	130,680	0	300	0	130,680
		3) high density		293	0	500	0	293	500	146,432	0	500	0	146,432
	10-5-5	Planning district IX	7,876	0	0		0	0		0	0		0	0
		1) low density		0	0	200	0	0	200	0	0	200	0	0
		2) medium density		0	0	300	0	0	300	0	0	300	0	0
		3) high density		0	0	500	0	0	500	0	0	500	0	0
	note 1)							note 2)						
	low density	10-100 person/ha, detached house 1-2 stories						m2/person in gross		(calculation basis of residential floor)				
	medium density	100-250 person/ha, apartment till 5 stories wo/elevator						18	2010		zero count for population decrease			
	high density	250-350 person/ha, high-rise building 6 stories or more w/elevator						22	2020		costed by demolition work			
								25	2030					

Cost Code		District / Zoning	Total Area to 2030	Development Cost of Office Floor Area by Phase										Total 2010 to 2030
				total	2010			2020			2030			
				requires	area	unit cost	amount	area	unit cost	amount	area	unit cost	amount	
			ha	1,000m2	1,000m2	US$/m2	US$1,000	1,000m2	US$/m2	US$1,00	1,000m2	US$/m2	US$1,000	US$1,000
10-5	Northwestern Planning Region		9,909	163	14		4,075	116		34,663	34		10,160	48,897
	10-5-1	Residential District 1	332	18	0	300	0	9	300	2,744	9	300	2,645	5,389
	10-5-2	Residential District 2	441	38	0	300	0	20	300	6,029	18	300	5,253	11,282
	10-5-3	West industrial district	575	21	8	300	2,276	7	300	2,117	6	300	1,798	6,191
	10-5-4	Residential District 4B	685	87	6	300	1,799	79	300	23,773	2	300	464	26,036
	10-5-5	Planning district IX	7,876	0	0	300	0	0	300	0	0	300	0	0
											zero count for floor area decrease			
											costed by demolition work			

Cost Code		District / Zoning	Total Area to 2030	Development Cost of Commercial Area by Phase										Total 2010 to 2030
				total	2010			2020			2030			
				requires	area	unit cost	amount	area	unit cost	amount	area	unit cost	amount	
			ha	1,000m2	1,000m2	US$/m2	US$1,000	1,000m2	US$/m2	US$1,00	1,000m2	US$/m2	US$1,000	US$1,000
10-5	Northwestern Planning Region		9,909	50	2		468	23		4,563	25		5,032	10,063
	10-5-1	Residential District 1	332	7	0	200	0	1	200	189	6	200	1,260	1,449
	10-5-2	Residential District 2	441	16	2	200	337	4	200	837	10	200	1,932	3,107
	10-5-3	West industrial district	575	0	0	200	0	0	200	0	0	200	3	3
	10-5-4	Residential District 4B	685	28	1	200	130	18	200	3,537	9	200	1,837	5,504
	10-5-5	Planning district IX	7,876	0	0	200	0	0	200	0	0	200	0	0
											zero count for floor area decrease			
											costed by demolition work			

10-5 Cost Summary of Residential, Office, and Commercial Floor area, and OM Cost in Northwestern Planning Region

Cost Code		District / Zoning	Total Area to 2030	Development Cost for Residential, Office and Commercial Area by Phase				Maintenance Cost 1 % of development cost		
				2010	2020	2030	total	2010	2020	2030
			ha	S$1,000	US$1,000	US$1,000	US$1,00	US$1,000	US$1,000	US$1,000
10-5	Northwestern Planning Region		9,909	22,742	464,834	136,321	623,898	227	4,876	6,239
	10-5-1	Residential District 1	332	0	31,155	31,600	62,755	0	312	628
		Residential area		0	28,222	27,695	55,917			
		Office floor area		0	2,744	2,645	5,389			
		Commercial area		0	189	1,260	1,449			
	10-5-2	Residential District 2	441	5,737	86,673	100,620	193,031	57	924	1,930
		Residential area		5,400	79,807	93,435	178,642			
		Office floor area		0	6,029	5,253	11,282			
		Commercial area		337	837	1,932	3,107			
	10-5-3	West industrial district	575	15,076	2,117	1,800	18,994	151	172	190
		Residential area		12,800	0	0	12,800			
		Office floor area		2,276	2,117	1,798	6,191			
		Commercial area		0	0	3	3			
	10-5-4	Residential District 4B	685	1,929	344,889	2,301	349,119	19	3,468	3,491
		Residential area		0	317,579	0	317,579			
		Office floor area		1,799	23,773	464	26,036			
		Commercial area		130	3,537	1,837	5,504			
	10-5-5	Planning district IX	7,876	0	0	0	0	0	0	0
		Residential area		0	0	0	0			
		Office floor area		0	0	0	0			
		Commercial area		0	0	0	0			

Table O.4.20 Cost Estimate Sheet for Transportation Sector, Phase I, II and III (Direct Construction Cost, O Cost and Replacement Cost) (1/6)

US$ 1.0=Tenge 144.0=JY 108.0

Cost Code		Descriptions				Unit	2010			2020			2030			2010 to 2030
							Q`ty	unit cost	amount	Q`ty	unit cost	amount	Q`ty	unit cost	amount	
								US$	US$1,000		US$	US$1,000		US$	US$1,000	US$1,000
20-1	a)	**Special Road**	Direct Construction Cost						**3,008**			**0**			**0**	
		sp-2	2.51 km	lane	new	km	2.51	800,000	2,008			0			0	2,008
		sp-3	1.25 km	lane	new	km	1.25	800,000	1,000			0			0	1,000
		total	3.76 km			km	3.76			0.00			0.00			
	b)	O&M Cost per annum per direct construction			5 %				150			150			150	
	c)	Replacement Cost Structure life (year)			50				0			0			0	
20-2	a)	**Main Streets of City Importance/Main roads (Arterial**							**60,292**			**14,406**			**27,378**	
		a-1	28.55 km	4 lane	new & improve	km	28.55		11,300			0			0	11,300
		a-2	57.75 km	4 lane	new & improve	km	5.44		2,990	51.69		2,814			0	5,804
		a-3	21.87 km	6 lane	new & improve	km	15.34		10,650			0			0	10,650
		a-4	13.72 km	4 lane	improve	km	11.56		4,624			0			0	4,624
		a-5	16.78 km	6 lane	new & improve	km	13.71		12,240			0			0	12,240
		a-6	19.99 km	6 lane	improve	km	0.66	400,000	264	2.46	400,000	984	3.41	400,000	1,364	2,612
		a-7	7.04 km	6 lane	improve	km	5.04	400,000	2,016			0			0	2,016
		a-8	7.61 km	6 lane	new	km	7.41	800,000	5,928			0			0	5,928
		a-9	6.16 km	6 lane	new	km	1.45	800,000	1,160	4.51	800,000	3,608			0	4,768
		a-10	5.68 km	6 lane	new	km	2.65	800,000	2,120			0	2.83	800,000	2,264	4,384
		sp-1	75.50			km	14.00	500,000	7,000	14.00	500,000	7,000	47.50	500,000	23,750	37,750
		total	60.65 km			km	91.81			58.66			6.24			
	b)	O&M Cost per annum per direct const. cost			5 %				3,015			3,735			5,104	
	c)	Replacement Cost Structure life (year)			50				0			0			0	
20-3	a)	**Main Streets of City Importance (Primary Roads)**							**13,034**			**17,690**			**0**	
		p-1	15.28 km	4 lane	new & improve	km	14.13		7,190			0			0	7,190
		p-2	5.84 km	4 lane	improve	km	1.94	300,000	582			0			0	582
		p-4	3.87 km	4 lane	new	km	1.74	500,000	870	2.13	500,000	1,065			0	1,935
		p-5	8.30 km	4 lane	new & improve	km			0	7.90		4,230			0	4,230
		p-6	13.79 km	4 lane	new & improve	km	1.41	500,000	705	6.71	500,000	3,355			0	4,060
		p-7	13.55 km	4 lane	new & improve	km	4.66		2,290	8.89		4,280			0	6,570
		p-8	4.79 km	4 lane	new	km	1.00	500,000	500	3.67	500,000	1,835			0	2,335
		p-9	6.27 km	4 lane	new & improve	km			0	5.22		2,090			0	2,090
		p-10	3.34 km	4 lane	improve	km	0.24	300,000	72			0			0	72
		p-11	8.11 km	4 lane	new	km	1.65	500,000	825	1.67	500,000	835			0	1,660
		total	83.14 km			km	26.77			36.19			0.00			
	b)	O&M Cost per annum per direct const. cost			5 %				652			1,536			1,536	
	c)	Replacement Cost Structure life (year)			50				0			0			0	

Table O.4.20 Cost Estimate Sheet for Transportation Sector, Phase I, II and III (Direct Construction Cost, O Cost and Replacement Cost) (2/6)

US$ 1.0=Tenge 144.0=JY 108.0

Cost Code		Descriptions	Unit	2010			2020			2030			2010 to 2030
				Q'ty	unit cost	amount	Q'ty	unit cost	amount	Q'ty	unit cost	amount	
					US$	US$1,000		US$	US$1,000		US$	US$1,000	US$1,000
20-4	a)	**Main Streets of Regional Importance (Secondary Road)**				**18,716**			**34,257**			**11,050**	
		s-1 2.64 km 4 lane improve	km	0.25	300,000	75			0			0	75
		s-2 1.80 km 4 lane improve	km	1.80	300,000	540			0			0	540
		s-3 1.87 km 4 lane improve	km	1.87	300,000	561			0			0	561
		s-4 4.82 km 4 lane new & improve	km	2.42		1,112			0			0	1,112
		s-5 9.65 km 4 lane new & improve	km			0	4.33		1,581			0	1,581
		s-6 0.63 km 4 lane improve	km	0.63	300,000	189			0			0	189
		s-7 0.60 km 4 lane improve	km	0.60	300,000	180			0			0	180
		s-8 5.03 km 4 lane new & improve	km			0	4.73		1,949			0	1,949
		s-9 6.32 km 4 lane new & improve	km			0	5.76		2,724	0.44	500,000	220	2,944
		s-10 5.84 km 4 lane new & improve	km			0	5.84		2,606			0	2,606
		s-11 9.62 km 4 lane new & improve	km	3.61	500,000	1,805	6.01		2,297			0	4,102
		s-12 2.94 km 4 lane new	km	1.76	500,000	880	0.61	500,000	305			0	1,185
		s-13 5.61 km 4 lane new & improve	km	2.11	500,000	1,055	1.32		426			0	1,481
		s-14 7.71 km 4 lane new & improve	km	4.91	500,000	2,455	2.68		1,100			0	3,555
		s-15 3.39 km 4 lane improve	km	3.39	300,000	1,017			0			0	1,017
		s-16 1.86 km 4 lane new & improve	km	1.18		506			0			0	506
		s-17 1.66 km 4 lane new & improve	km	1.66		642			0			0	642
		s-18 1.01 km 4 lane new & improve	km	0.69		838			0			0	838
		s-19 3.60 km 4 lane improve	km	1.72	300,000	516	1.88	300,000	564			0	1,080
		s-20 1.36 km 4 lane new	km	1.36	500,000	680			0			0	680
		s-21 2.59 km 4 lane new	km			0	2.59	500,000	1,295			0	1,295
		s-22 2.52 km 4 lane new	km	2.52	500,000	1,260			0			0	1,260
		s-23 2.77 km 4 lane new	km	2.77	500,000	1,385			0			0	1,385
		s-24 2.78 km 4 lane new	km	2.78	500,000	1,390			0			0	1,390
		s-25 1.28 km 4 lane new	km	1.28	500,000	640			0			0	640
		s-26 3.26 km 4 lane new	km	1.26	500,000	630	2.00	500,000	1,000			0	1,630
		s-27 2.36 km 4 lane new	km	0.36	500,000	180	2.00	500,000	1,000			0	1,180
		s-28 1.22 km 4 lane new	km			0	1.22	500,000	610			0	610
		s-29 2.37 km 4 lane new	km	0.36	500,000	180	2.01	500,000	1,005			0	1,185
		s-30 1.58 km 4 lane new	km			0	1.58	500,000	790			0	790
		s-31 1.52 km 4 lane new	km			0	1.52	500,000	760			0	760
		s-32 1.26 km 4 lane new	km			0	1.26	500,000	630			0	630
		s-33 4.30 km 4 lane new	km			0	4.30	500,000	2,150			0	2,150
		s-34 3.51 km 4 lane new	km			0	3.51	500,000	1,755			0	1,755
		s-35 5.04 km 4 lane new	km			0	5.04	500,000	2,520			0	2,520
		s-36 1.46 km 4 lane new	km			0	1.46	500,000	730			0	730
		s-37 9.86 km 4 lane new	km			0	5.16	500,000	2,580	4.52	500,000	2,260	4,840

Table O.4.20 Cost Estimate Sheet for Transportation Sector, Phase I, II and III (Direct Construction Cost, O Cost and Replacement Cost) (3/6)

US$ 1.0=Tenge 144.0=JY 108.0

Cost Code			Descriptions	Unit	2010			2020			2030			2010 to 2030
					Q'ty	unit cost	amount	Q'ty	unit cost	amount	Q'ty	unit cost	amount	
						US$	US$1,000		US$	US$1,000		US$	US$1,000	US$1,000
		s-38	2.78 km 4 lane new	km			0	2.78	500,000	1,390			0	1,390
		s-39	2.71 km 4 lane new	km			0	2.71	500,000	1,355			0	1,355
		s-40	2.27 km 4 lane new	km			0	2.27	500,000	1,135			0	1,135
		s-41	3.92 km 4 lane new	km			0			0	3.92	500,000	1,960	1,960
		s-42	1.95 km 4 lane new	km			0			0	1.95	500,000	975	975
		s-43	3.29 km 4 lane new	km			0			0	3.29	500,000	1,645	1,645
		s-44	2.87 km 4 lane new	km			0			0	2.87	500,000	1,435	1,435
		s-45	2.62 km 4 lane new	km			0			0	2.62	500,000	1,310	1,310
		s-46	2.49 km 4 lane new	km			0			0	2.49	500,000	1,245	1,245
		total	52.54 km	km	41.29			74.57			22.10			
	b)	O&M Cost per annum per direct const. Cost 5 %					936			2,649			3,201	
	c)	Replacement Cost Structure life (year) 50					0			0			0	
20-5	a)	**Streets and Roads of Local Importance (Tertiary Road)**					**5,400**			**14,400**			**3,555**	
		TR1	19.75 km 2 lane new	km	18.00	300000	5,400			0			0	5,400
			(t-1, t-2, t-3, t-5, t-6, t-7, t-8, t-44, t-46, t-47, t-48, t-49, t-50)											
		TR2	48.93 km 2 lane new	km			0	48.00	300,000	14,400			0	14,400
			(t-10, t-15 to t-23, t-25, t-26, t-28 to t-33, t-35 to t-43, t-45, t-49, t-51, 53, 54, 56)											
		TR3	11.85 km 2 lane new	km			0			0	11.85	300,000	3,555	3,555
			(t-34, t-55, t-57)											
		total	80.53 km	km	18.00			48.00			11.85			
	b)	O&M Cost per annum per direct const. Cost 5 %					270			990			1,168	
	c)	Replacement Cost Structure life (year) 50					0			0			0	
20-6	a)	**Trolley Bus Proje** Direct cost					4,950			0			0	
		20-6-	Reconstruction & Construction of Catenary Cables	km	30.00		2,950			0			0	2,950
		20-6-	Power station construction	sta.	4.00		2,000			0			0	2,000
	b)	O&M Cost per annum per direct const. Cost 5 %					248			248			248	
	c)	Replacement Cost Structure life (year) 30					0			0			0	
20-7	a)	**Bridge (b-2 to b-2** Direct Construction Cost					**7,327**			**6,864**			**5,280**	
		b-2	200 m 4 lane new RC	m2			0			0	800	1,200	960	960
		b-3	200 m 4 lane new RC	m2			0	800	1,200	960			0	960
		b-4	200 m 4 lane new RC	m2			0			0	800	1,200	960	960
		b-5	50 m 4 lane new RC	m2			0	200	1,200	240			0	240
		b-6	200 m 6 lane new RC	m2	1,200	1,200	1,440			0			0	1,440

Table O.4.20 Cost Estimate Sheet for Transportation Sector, Phase I, II and III (Direct Construction Cost, O Cost and Replacement Cost) (4/6)

US$ 1.0=Tenge 144.0=JY 108.0

Cost Code		Descriptions					Unit	2010			2020			2030			2010 to 2030
								Q`ty	unit cost	amount	Q`ty	unit cost	amount	Q`ty	unit cost	amount	
									US$	US$1,000		US$	US$1,000		US$	US$1,000	US$1,000
		b-7	151 m	6 lane	new	RC	m2	906	1,200	1,087			0			0	1,087
		b-8	200 m	6 lane	new	RC	m2	1,200	1,200	1,440			0			0	1,440
		b-9	200 m	6 lane	new	RC	m2	1,200	1,200	1,440			0			0	1,440
		b-10	200 m	6 lane	new	RC	m2	1,200	1,200	1,440			0			0	1,440
		b-11	200 m	4 lane	new	RC	m2			0	800	1,200	960			0	960
		b-12	200 m	4 lane	new	RC	m2			0	800	1,200	960			0	960
		b-13	200 m	2 lane	new	RC	m2			0	400	1,200	480			0	480
		b-14	200 m	6 lane	new	RC	m2			0	1,200	1,200	1,440			0	1,440
		b-15	200 m	6 lane	new	RC	m2			0			0	1,200	1,200	1,440	1,440
		b-16	200 m	4 lane	new	RC	m2			0	800	1,200	960			0	960
		b-17	200 m	4 lane	new	RC	m2			0			0	800	1,200	960	960
		b-18	200 m	4 lane	new	RC	m2			0			0	800	1,200	960	960
		b-19	180 m	4 lane	new	RC	m2			0	720	1,200	864			0	864
		b-21	50 m	4 lane	new	RC	m2	200	1,200	240			0			0	240
		b-22	50 m	4 lane	new	RC	m2	200	1,200	240			0			0	240
		b-24	50 m	4 lane	new	RC	m2			0	200		0			0	0
		total	3,531 m				m2	6,106			5,920			4,400			
	b)	O&M Cost per annum per direct const. Cost				2 %				147			284			389	
	c)	Replacement Cost Structure life (year)				50				0			0			0	
										55,380			**4,512**			**78,892**	
20-8	a)	**Bridge (f-3 to f-15** Direct Construction Cost								0	720	1,200	864			0	864
		f-3	180 m	4 lane	new	RC	m2										
		f-4	400 m	6 lane	new	RC	m2	2,400	1,200	2,880			0			0	2,880
		f-5	400 m	4 lane	new	RC	m2			0	1,600	1,200	1,920			0	1,920
		f-6	200 m	4 lane	new	RC	m2			0			0	800	1,200	960	960
		f-8	120 m	4 lane	new	RC	m2			0	480	1,200	576			0	576
		f-9	120 m	4 lane	new	RC	m2			0	480	1,200	576			0	576
		f-10	120 m	4 lane	new	RC	m2			0	480	1,200	576			0	576
		f-12	60 m	6 lane	new	RC	m2			0			0	360	1,200	432	432
		f-13	120 m	4 lane	new	RC	m2			0	480		0			0	0
		f-14	3,100 m	10 m	new	RC	m2			0			0	31,000	2,500	77,500	77,500
		f-15	2,100 m	10 m	new	RC	m2	21,000	2,500	52,500			0			0	52,500
		total	6,920 m				m2	23,400			4,240			32,160			
	b)	O&M Cost per annum per direct const. Cost				2 %				1,108			1,198			2,776	
	c)	Replacement Cost Structure life (year)				50				0			0			0	
										0			**0**			**30,000**	
20-9	a)	**Tunnel (t-1)** Direct Construction Cost								0			0	400	75,000	30,000	30,000
		t-1	400 m		new		m										

Table O.4.20 Cost Estimate Sheet for Transportation Sector, Phase I, II and III (Direct Construction Cost, O Cost and Replacement Cost) (5/6)

US$ 1.0=Tenge 144.0=JY 108.0

Cost Code		Descriptions	Unit	2010			2020			2030			2010 to 2030
				Q`ty	unit cost US$	amount US$1,000	Q`ty	unit cost US$	amount US$1,000	Q`ty	unit cost US$	amount US$1,000	US$1,000
	b)	O&M Cost per annum per direct const. Cost 1 %				0			0			300	
	c)	Replacement Cost Structure life (year) 100				0			0			0	
	a)	**LRT** Direct Construction Cost				**156,500**			**63,500**			**157,500**	
20-10		**L-1** 22 km 16 station new	LS	1		156,500			0			0	156,500
20-11		**L-2** 8 km 8 station new	LS			0	1		63,500			0	63,500
20-12		**L-3** 22 km 23 station new	km			0			0	1		157,500	157,500
	b)	O&M Cost per annum per direct const. Cost 4 %				6,260			8,800			15,100	
	c)	Replacement Cost Structure life (year) 30				0			0			0	
	a)	**Terminal** Direct Construction Cost				**2,700**			**300**			**300**	
20-13		**Terminal (T-** m2 12,500 Akmola station	LS	1		1,300			0			0	1,300
20-14		**Terminal (T-** m2 3,000 Abylaikhan sta.	LS			0			0	1		300	300
20-15		**Terminal (T-** m2 3,000 City park of cultural & Rec.	LS	1		300			0			0	300
20-16		**Terminal (T-** m2 3,000 Int. exiibition a city a. port	LS			0	1		300			0	300
20-17		**Terminal (T-** m2 2,000 Government city	LS	1		1,100			0			0	1,100
	b)	O&M Cost per annum per direct const. Cost 0.5 %				14			15			17	
	c)	Replacement Cost Structure life (year) 100				0			0			0	
	a)	**Traffic Light/Control Cen** Direct Construction Cost				**3,990**			**2,348**			**693**	
20-18		**Traffic light** new	set	180	5,500	990	245	5,500	1,348	35	5,500	193	2,530
20-19		**Traffic control center** new	LS	1		3,000	1		1,000	1		500	4,500
20-20		**Parking facility** (included to roads)				0			0			0	
20-21		**Street environment improvement** (-do-)				0			0			0	
	b)	O&M Cost per annum per direct const. Cost 2 %				80			127			141	
	c)	Replacement Cost Structure life (year) 15				0			3,990			2,348	
	a)	**Railway** Direct Construction Cost				**0**			**30,600**			**0**	
20-22		**Railway** double track new	km			0	19.5	800,000	15,600			0	15,600
20-23		**Cargo yard** new	ha			0	30.0	300,000	9,000			0	9,000
20-24		**Cargo terminal** w/roof and cran new	ha			0	3.0	2,000,000	6,000			0	6,000
	b)	O&M Cost per annum per direct const. Cost 2 %				0			612			612	
	c)	Replacement Cost Structure life (year) 50				0			0			0	
20-25	a)	**Airpo**, improve Direct Construction Cost				**19,500**			**0**			**0**	
		Astana international airport improvement	LS	1.00		19,500			0			0	19,500
		(new terminal buildings, technical service center,											
		runway 3,600 m x 45 m etc.)											

Table O.4.20 Cost Estimate Sheet for Transportation Sector, Phase I, II and III (Direct Construction Cost, O Cost and Replacement Cost) (6/6)

US$ 1.0=Tenge 144.0=JY 108.0

Cost Code		Descriptions	Unit	2010			2020			2030			2010 to 2030
				Q`ty	unit cost	amount	Q`ty	unit cost	amount	Q`ty	unit cost	amount	
					US$	US$1,000		US$	US$1,000		US$	US$1,000	US$1,000
	b)	O&M Cost per annum per direct const. Cost 5 %				975			975			975	
	c)	Replacement Cost Structure life (year) 100				0			0			0	
	a)	**Total, Direct Construction Cost**				**350,797**			**188,877**			**314,648**	**854,321**
		Cumulative, Direct Copnstruction Cost							**539,674**			**854,321**	
	b)	**Total, Annual Operation and maintenance Cost**				**13,852**			**35,171**			**66,887**	
	c)	**Total, Replacement Cost**				**0**			**3,990**			**2,348**	

Table O.4.21 Cost Estimate Sheet for Water Resources Sector, Phase I, II and III (Direct Construction Cost, O&M Cost, and Replacement Cost)

US$ 1.0=Tenge 144.0=JY 108.0

Cost Code		Descriptions	Unit	2010			2020			2030			2010 to 2030
				Q'ty	unit cost	amount	Q'ty	unit cost	amount	Q'ty	unit cost	amount	
					US$	US$1,000		US$	S$1,00		US$	US$1,000	US$1,000
30-1	a)	**IKC-Ishim Pipeline Project** Direct Construction Cost				23,300						17,440	
		(No. 01-10/9 Project List No. 23)											
		30-1-1 Installation, pressure pipeline, embeded steel, D1.4 m	km	9.6						9.6	900,000	8,640	
		30-1-2 Installation, non-pressure pipeline, embeded RC, D1.2 m	km	10.0						10.0	200,000	2,000	
		30-1-3 Pump station w/substations	no.	2.0									
		30-1-4 Water pump, 7 m3/s at existing P/S of IKC	set	2.0									
		30-1-5 Water pump, 3.5 m3/s at P/S of pipeline	set	2.0						2.0	3,400,000	6,800	
		Total direct constructioncost				**23,300**						**17,440**	
	b)	O&M Cost per annum											
		1) Cost of raw water in IKC	MCM	90	0.048	4,363				180.0	0.048	8,640	
		2) Energy cost	kwH	53,573,333	0.028	1,488				107,146,667	0.028	3,000	
		output 3,750 kW (3.6x82x9.8/0.75)											
		hour 7,143 hr 90,000,000/(3.5x3,600)											
		Energy ######### kw (3,750x7,143x2)											
		3) Office											
		salary 20-staff x 12-month	m/m	240	208	50				240	208	50	
		4) Maintenance and repair	LS	1		233						407	
		Total, annual operation and maintenance cost				**6,134**			**6,134**			**18,231**	
	c)	**Total, Replacement Cost** Structure life (year) 100				**0**			**0**			**0**	

Table O.4.22 Cost Estimate Sheet for Water Supply Sector, Phase I, II and III (Direct Construction Cost, O&M Cost, and Replacement Cost)

US$ 1.0=Tenge 144.0=JY 108.0

Cost Code		Descriptions	Unit	2010			2020			2030			2010 to 2030
				Q`ty	unit cost	amount	Q`ty	unit cost	amount	Q`ty	unit cost	amount	
					US$	US$1,00		US$	S$1,00		US$	US$1,000	US$1,000
40-1		**Construction of 3rd Water Pipeline**				**26,000**							
		(No. 01-10/9 Project List No. 22)											
40-2		**Construction of Water Supply and Drainage**				**(600)**	this cost included to cost code 40-4 and drainage sector						
		Networks											
		(No. 01-10/9 Project List No. 35)											
40-3		**Reconstruction of Water Supply and Drainage**				**(500)**	this cost included to cost code 40-4						
		Networks, Water Supply and Sewerage Pump											
		Station, WTP											
		(No. 01-10/9 Project List No. 37)											
40-4		**Water Supply, Priority Project, 1st Stage**				**95,900**							
		40-4-1 Intake facilities, 200,000 m3/day	LS	1		10,100							
		40-4-2 Water treatmennt plant, 100,000 m3/day	LS	1		47,300							
		40-4-3 Water distribution, replacement D100-500 mm x L99 km	LS	1		35,700							
		new D 150-1,800 mm xL75 km											
		40-4-4 Individual water meter, 65,500 pcs, water meter	LS	1		2,800							
40-5		**Water Supply - 2nd Stage**							**120,400**				
		40-5-1 Inteke facilities, 150,000 m3/d for civil, 75,000 m3/d for M&E	LS				1		7,600				
		40-5-2 Raw water transmission pipeline (4th), new D1,400 mm	km				66		33,700				
		40-5-3 Water treatment plant, 120,000 m3/day	LS				1		66,300				
		40-5-4 Water distribution, new D 500-1,400 mm	km				50		12,800				
												55,800	
40-6		**Water Supply - 3rd Stage**								1		2,600	
		40-6-1 Intake facilities, 75,000 m3/day for M&E	LS							1		47,400	
		40-6-2 Water treatment plant, 100,000 m3/day	LS							40		5,800	
		40-6-3 Water distribution, new D 300-600 mm	km										
	a)	**Total Direct construction cost**				**120,800**			**120,400**			**55,800**	
		Cumulative							**241,200**			**297,000**	
	b)	**Total, O&M Cost per annum**				**1,974**			**2,829**			**3,481**	
		(assumed at US$0.037/m3 or Tenge 5.3/m3 of treated water from past record)											
	c)	**Toral, Replacement cost** Structure life (year) 40				**0**			**0**			**0**	

Table O.4.23 Cost Estimate Sheet for Sewerage Sector, Phase I, II and III (Direct Construction Cost, O&M Cost, and Replacement Cost)

US$ 1.0=Tenge 144.0=JY 108.0

Cost Code		Descriptions	Unit	2010			2020			2030			2010 to 2030
				Q'ty	unit cost	amount	Q'ty	unit cost	amount	Q'ty	unit cost	amount	
					US$	US$1,00		US$	S$1,00		US$	US$1,000	US$1,000
50-1	a)	**Reconstruction of Water Supply and Drainage Networks, Water Supply &**				(500)	this cost included to cost code 50-4, 50-5 and water supply						
		Sewerage Pump Station, (No. 01-10/9 Project List No. 37)											
50-2		**Reconstruction Sewage Po** (No. 01-10/9 Project List No. 63)				(630)	this cost included to cost code 50-4, 50-5 and water supply						
50-3	a)	**Sewerage Treatment Plant Rehabilitation**	m3/d	36,000.0		**21,200**							
50-4	a)	**Sewerage Collection System Rehabilitation**				**14,400**							
		50-4-1 Sewer pipes, D300-1,500 mm	km	20.0		9,400							
		50-4-2 Pumping station	place	17.0		5,000							
50-5	a)	**Sewerage Collection System Expansion (1)**				**46,400**							
		50-5-1 Sewer pipes, D350-1,500 mm w/secondary pipes	km	36.0		41,100							
		50-5-2 Pumping station	m3/h	84.0		5,300							
50-6	a)	**Sewerage Treatment Plant Expansion (1)**	m3/d				40,000		**20,000**				
50-7	a)	**Sewerage Collection System Expansion (2)**							**65,600**				
		50-7-1 Sewer pipes, D350-1,500 mm w/secondary pipes	km				50.5		57,500				
		50-7-2 Pumping station	m3/h				84.0		8,100				
50-8	a)	**Sewerage Treatment Plant Expansion (2)**	m3/d							42,000		21,000	
50-9	a)	**Sewarage Treatment Rehabilitation (Full scale)**	LS							1		10,000	
50-1	a)	**Sewerage Collection System Expansion (3)**											
		50-10- Sewer pipes, D300-1,500 mm w/secondary pipes	km							36.1		17,100	
		50-10- Pumping station	m3/h							84		4,700	
	a)	**Total, Direct Construction Cost**				**142,800**			**51,200**			**52,800**	
		Cumulative							**294,000**			**346,800**	
	b)	**Total Operation and Maintenance Cost per annum**				**1,551**			**2,368**			**2,998**	
		(assumed at US$0.041/m3 or Tenge 5.9/m3 of treated sewerage from past record)											
	c)	**Total Replacement Cost**				**0**			**0**			**0**	

Table O.4.24 Cost Estimate Sheet for Storm Water Drainage Sector, Phase I, II and III (Direct Construction Cost, O&M Cost, and Replacement Cost)

US$ 1.0=Tenge 144.0=JY 108.0

Cost Code		Descriptions	Unit	2010			2020			2030			2010 to 2030
				Q'ty	unit cost US$	amount US$1,00	Q'ty	unit cost US$	amount S$1,00	Q'ty	unit cost US$	amount S$1,00	US$1,000
60-1	a)	**Construction of Treatment Statio** Direct construction cost				**500**							
	b)	O&M Cost per annum per direct construction cost 1 %				5							
	c)	Replacement Cost Structure life (year) 50				0							
60-2	a)	**Project for the Stormwater Drainage Development & improvement**				**29,600**							
		(District No. 1, 2, 3, 4A, 5, 6, 7, 8, 9, 10, 11, 12, 13, 17, central ind., North ind., west ind., and station 40) Direct construction cost											
		60-2-1 Construction of pipelines, RC pipe, D600-1,800 mm, L=200 km	LS	1		27,000							
		60-2-2 Construction of drainage pump station, 27 places	LS	1		2,000							
		60-2-3 Construction of treatment station, 12 places	LS	1		600							
	b)	O&M Cost per annum per direct construction cost 1 %				296							
	c)	Replacement Cost Structure life (year) 50				0							
60-3		**Project for Stormwater Drainage in New City Center**				**5,000**							
	b)	O&M Cost per annum per direct construction cost 1 %				50							
	c)	Replacement Cost Structure life (year) 50				0							
60-4	a)	**Project for Stormwater Drainage develop** Direct construction cost							**9,250**				
		(District No. 4B, 14, 15, 16, 17, 18, 19, central ind., and Station 40)					1		8,100				
		60-4-1 Construction of pipelines, RC pipe, D500-1,200 mm, L=60 km	LS				1		900				
		60-4-2 Construction of drainage pump station, 12 places	LS				1		250				
		60-4-3 Construction of treatment station, 5 places	LS						93				
	b)	O&M Cost per annum per direct construction cost 1 %							0				
	c)	Replacement Cost Structure life (year) 50										**2,200**	
60-5	a)	Project for the Stormwater Drainage Develop Direct construction cost								1		2,000	
		60-5-1 Construction of pipelines	LS							1		150	
		60-5-2 Construction of drainage pump station	LS							1		50	
		60-5-3 Construction of treatment station	LS									22	
	b)	O&M Cost per annum per direct construction cost 1 %										0	
	c)	Replacement Cost Structure life (year) 50											
	a)	**Total, Direct Construction Cost**				**35,100**			**9,250**			**2,200**	**46,550**
		Cumulative							**44,350**			**46,550**	
	b)	**Total Operation and Maintenance Cost per annum**				**351**			**601**			**623**	
	c)	**Total Replacement Cost**				**0**			**0**			**0**	
note:		(The cost of the following projects includes to the project no. 60-1 to 60-5 above)				4,547							
		Const. of stormwater Drainage Syst (No.01-10/9 Project List No. 34)				300							
		Const, of Drainage Network (No.01-10/9 Project list No. 35)				500							
		Const. of Treatment Station for Stormwater Drainage System (No. 01-10/9 Project List no. 40)											

Table O.4.25 Cost Estimate Sheet for Flood Protection Sector, Phase I, II and III (Direct Construction Cost, O&M Cost, and Replacement Cost)

US$ 1.0=Tenge 144.0=JY 108.0

Cost Code		Descriptions	Unit	2010			2020			2030			2010 to 2030
				Q'ty	nit cos	amount	Q'ty	unit cost	amount	Q'ty	unit cost	amount	
					US$	US$1,00		US$	S$1,00		US$	S$1,00	US$1,000
70-1	a)	**Ishim River improvement Wo** Direct construction cost				**6,000**							
		(No.01-10/9 Project List No. 33)											
		70-1- Dredging and channel formation	LS	1		6,000							
		(Estuary of Ak-bulak river to complex of government building)											
	b)	O&M Cost per annum per direct construction cost 1 %				60			60			60	
	c)	Replacement cost Structure life (year) 50				0							
70-2	a)	**Reconstruction of Ishim River Em** Direct construction cost				**750**							
		(No, 01-10/9 Project List No.57)											
		70-2- River embankment (section 4 & 5)	LS	1		750							
	b)	O&M Cost per annum per direct construction cost 1 %				8			8			8	
	c)	Replacement cost Structure life (year) 50				0							
70-3	a)	**Reconstruction of Bank of Ak-Bulak River** (2nd Direct const. Cost				**2,500**							
		(No, 01-10/9 Project List No.59)											
	b)	O&M Cost per annum per direct construction cost 1 %				25			25			25	
	c)	Replacement cost Structure life (year) 50				0							
70-4	a)	**Ishim River Improvement, L=3.0 k** Direct construction cost				**6,130**							
		(Sary-Alka street to confluence of Sarybulak River)											
		70-4- Excavation (open cut and dredging)	m3	1,150,000	4	4,945							
		70-4- Embankment	m3	130,000	5	585							
		70-4- Construction of weir, H3.0 m, W170.0 m	LS	1		500							
		70-4- Related structures	LS	1		100							
	b)	O&M Cost per annum per direct construction cost 1 %				61			61			61	
	c)	Replacement cost Structure life (year) 50				0							
70-5	a)	**Ishim River Improvement, L= 14 k** Direct construction cost							**24,800**				
		(New City Center to 2nd ring road, Sarybulak River to 2nd ring road)											
		70-5- Excavation (open cut and dredging)	m3				,300,000	4	21,200				
		70-5- Embankment	m3				600,000	5	3,000				
		70-5- Construction of weir	LS				1		500				
		70-5- Related structures	LS				1		100				
	b)	O&M Cost per annum per direct construction cost 1 %				0			248			248	
	c)	Replacement cost Structure life (year) 50							0				
70-6	a)	**Ishim River Improvement, L= 9 k** Direct construction cost										**16,100**	
		(2nd ring road to 3rd ring road)											
		70-6- Excavation (open cut and dredging)	m3							3,500,000	4	14,000	
		70-6- Embankment	m3							400,000	5	2,000	
		70-6- Related structures	LS							1		100	
	b)	O&M Cost per annum per direct construction cost 1 %				0			0			161	
	c)	Replacement cost Structure life (year) 50										0	
70-7	a)	**Const. of Flood Regulating Reserv** Direct construction cost										**8,100**	
		70-7- Embankment for dike	m3							1,200,000	5	6,000	
		70-7- Flood control gate	LS							1		2,000	
		70-7- Related structures	LS							1		100	
	b)	O&M Cost per annum per direct construction cost 1 %				0			0			81	
	c)	Replacement cost Structure life (year) 50										0	
	a)	**Total Direct construction cost**				**15,380**			**24,800**			**24,200**	**64,380**
		Cumulative							**40,180**			**64,380**	
	b)	**Total Operation and maintenance cost per annum**				**154**			**402**			**644**	
	c)	**Total Replacement cost**				**0**			**0**			**0**	

Table O.4.26 (1) Cost Estimate Sheet for Power and Heat Energy Sector, Phase I, II and III (Direct Construction Cost, O&M Cost, and Replacement Cost)

US$ 1.0=Tenge 144.0=JY 108.0

Cost Code		Descriptions	Unit	2010			2020			2030			2010 to 2030
				Q'ty	unit cost US$	amount US$1,00	Q'ty	unit cost US$	amount S$1,00	Q'ty	unit cost US$	amount US$1,000	US$1,000
80-1	a)	**110/10 kV Substation & Transmission Line Project** Direct Const. Cost				**(3,900)**	(this cost included into cost code 80-3)						
		(Development of Power Supply System of											
		Astana City up to 2007, 1st Stage)											
		(No. 01-10/9 Project List No. 32)											
		80-1- Construction of 110 kV transmission line from airport	LS	1									
		to left bank of Ishim River (new city center)											
		80-1- Construction of 110/10 kV substation at left bank	LS	1									
		Ishim River (new city center)											
	b)	O&M Cost per annum per direct construction cost 4 %											
	c)	Replacement cost 50											
80-2	a)	**Conventional Electric Power & Heat Energy** Direct const. Cost				**122,000**							
		Generating Plant Project											
		80-2- Power and heat energy generating plant in 200 115 MW	set	1		117,300							
		80-2- Mandatory spare parts and consumables	set	1		4,700							
	b)	O&M Cost per annum per direct construction cost 4 %											
	c)	Replacement cost 50											
80-3	a)	**Construction for 110 kV Transmission Line &Subst** Direct const. Cost				**24,600**							
		(partly included the Project No. 80-1 above)											
		80-3- Construction of 110 kV transmission line, underground and overhaed	km	61.4		12,000							
		80-3- Construction and extension of substations, 110/10 kV	place	3.0		11,700							
		80-3- Mandatory spare parts and consumables	set	1		900							
	b)	O&M Cost per annum per direct construction cost 4 %											
	c)	Replacement cost 50											
80-4	a)	**Construction of 110 kV Transmission Line & Subst** Direct const. Cost							**14,400**				
		80-4- 110 kV Transmission line	km				40.5		6,200				
		80-4- Substations including extension	place				2.0		7,600				
		80-4- Mandatory spare parts and consumables	LS				1		600				
	b)	O&M Cost per annum per direct construction cost 4 %											
	c)	Replacement cost 50											
80-5	a)	**Construction of 110 kV Transmission Line and Subs** Direct const. Cost										**6,400**	
		80-5- 110 kV Transmission line	km							12.7		1,900	
		80-5- Substations including extension	place							1		4,200	
		80-5- Mandatory spare parts and consumables	LS							1		300	
	b)	O&M Cost per annum per direct construction cost 4 %											
	c)	Replacement cost 50											
	a)	**Total Direct construction cost**				**146,600**			**14,400**			**6,400**	
		Cumulative							**161,000**			**167,400**	**167,400**
	b)	**Total Operation and maintenance cost per annum** 4 %				**5,864**			**12,304**			**19,000**	
	c)	**Total Replacement cost**				**0**			**0**			**0**	

Table O.4.26 (2) Cost Estimate Sheet for Power and Heat Energy, Phase I, II and III (Direct Construction Cost, O&M Cost, and Replacement Cost)

US$ 1.0=Tenge 144.0=JY 108.0

Cost Code		Descriptions	Unit	2010			2020			2030			2010 to 2030
				Q'ty	unit cost	amount	Q'ty	unit cost	amount	Q'ty	unit cost	amount	
					US$	US$1,00		US$	US$1,000		US$	US$1,000	US$1,000
80-4	a)	**Repair and Restoration of Abondoned Heat**				**300**							
		Mains and Distribution Networks of the City											
		(No. 01-10/9 Project List No. 38)											
		80-4-1 Repair and Restoration of heat mains and distribution networks	LS	1		300							
	b)	O&M Cost per annum per direct construction cost 4 %											
	c)	Replacement cost Structure life (year) 30											
80-5	a)	**Construction of Heat pump Station No.6**				**1,200**							
		(No. 01-10/9 Project List No. 41)											
		80-5-1 Heat pump station, No.6	LS	1		1,200							
	b)	O&M Cost per annum per direct construction cost 4 %											
	c)	Replacement cost Structure life (year) 30											
80-6	a)	**Project for Extension of Existing District Heating Pipelines to New City Center and New development Area on the Right Bank of Ishim River**				**39,100**							
		80-6-1 Construction of pipelines (Extension to new city center and new develop area)	LS	1		38,300							
		80-6-2 Mandatory spare parts and consumables	set	1		800							
	b)	O&M Cost per annum per direct construction cost 4 %											
	c)	Replacement cost Structure life (year) 30											
80-7	a)	**Project for Three (3) Heat centers, HC-1, HC-2, and HC-3**				**53,700**							
		80-7-1 Hot water boilers	set	15		11,700							
		80-7-2 Buildings	place	3		1,100							
		80-7-3 Pipelines to 3 districts	LS	1		38,800							
		80-7-4 Mandatory spare parts and consumables	set	1		2,100							
	b)	O&M Cost per annum per direct construction cost 4 %											
	c)	Replacement cost Structure life (year) 30											
80-4	a)	**Natural Gas Firing Combined Cycle Plant**							**108,000**			**140,500**	
		80-4-1 Gas turbine combined cycle plant	MW				150		101,000	200		134,400	
		80-4-2 Mandatory spare parts and consumables	LS				1		4,000	1		5,400	
		80-4-3 Natural gas pipelines	LS				1		3,000	1		700	
	b)	O&M Cost per annum per direct construction cost 4 %											
	c)	Replacement cost Structure life (year) 30											
80-6	a)	**Construction of Three (3) Heat Centers and Related Pipelines on the Left Bank of Ishim River, HC-4, HC-5, and HC-6**							**52,300**				
		80-6-1 Hot water boilers	set				15		11,700				
		80-6-2 Buildings (3 plus 2 extensions)	place				3		1,100				
		80-6-3 Pipelines (3 districts plus 2 extensions)	LS				1		37,500				
		80-6-4 Mandatory spare parts and consumables	LS				1		2,000				
	b)	O&M Cost per annum per direct construction cost 4 %											
	c)	Replacement cost Structure life (year) 30											
80-7	a)	**Construction of One (1) Heat center, Extension of Four (4) Heat centers and Related Pipelines on the Left Bank, I. River**										**49,300**	
		80-7-1 Hot water boilers	set							19		14,800	
		80-7-2 Buildings (1 plus 4 extension)	place							1		1,400	
		80-7-3 Pipelines (1 district plus extension)	LS							1		31,200	
		80-7-4 Mandatory spare parts and consumables	LS							1		1,900	
	b)	O&M Cost per annum per direct construction cost 4 %											
	c)	Replacement cost Structure life (year) 30											
	a)	Total Direct construction cost				**94,300**			**160,300**			**189,800**	
		Cumulative							**254,600**			**444,400**	**444,400**
	b)	Total Operation and Maintenance Cost per annum 4 %				**3,772**			**10,184**			17,776	
	c)	Total Replacement Cost				**0**			**0**			**0**	

Table O.4.27 Cost Estimate Sheet for Gas Supply Sector, Phase I, II and III (Direct Construction Cost, O&M Cost, and Replacement Cost)

US$ 1.0=Tenge 144.0=JY 108.0

Cost code		Descriptions		Unit	2010			2020			2030			2010 to 2030
					Q'ty	unit cost	amount	Q'ty	unit cost	amount	Q'ty	unit cost	amount	
						US$	US$1,00		US$	US$1,000		US$	US$1,000	US$1,000
		Astana City Gas Supply Network Project Direct const. Cost					**98,000**							
90-1	a)	90-1-1	Establishment of Gas supply Company	LS	1.0		0							
		90-1-2	Construction of high pressure network	LS	1.0		35,400							
		90-1-3	Construction of low pressure network	LS	1.0		32,000							
		90-1-4	Construction of supplying facilities	LS	1.0		30,600							
	b)	O&M Cost per annum per direct construction cost	2 %				1,960			1,960			1,960	
	c)	Replacement cost Structure life (year)	30				0			0			0	
										17,300			**8,500**	
90-1	a)	**Gas Supply Network Expansion Project** (Direct const. Cost												
		90-1-1	Expansion of high pressure network	LS				1.0		5,000	1.0		3,800	
		90-1-2	Expansion of low pressure network	LS				1.0		6,600	1.0		2,500	
		90-1-3	Expansion of supplying facilities	LS				1.0		5,700	1.0		2,200	
	b)	O&M Cost per annum per direct construction cost	2 %				0			346			516	
	c)	Replacement cost Structure life (year)	30							0			0	
							98,000			**17,300**			**8,500**	
	a)	**Total**	**Direct construction cost**				**98,000**			**115,300**			**123,800**	**123,800**
		Cumulative												
							1,960			**2,306**			**2,822**	
	b)	**Total**	**Operation and maintenance cost per annum**				**0**			**0**			**0**	
	c)	**Total**	**Replacement cost**											

Table O.4.28 Cost Estimate Sheet for Gas Supply Sector, Phase I, II and III (Direct Construction Cost, O&M Cost, and Replacement Cost)

US$ 1.0=Tenge 144.0=JY 108.0

Cost code		Descriptions	Unit	2010			2020			2030			2010 to 2030
				Q`ty	unit cost	amount	Q`ty	unit cost	amount	Q`ty	unit cost	amount	
					US$	US$1,00		US$	S$1,00		US$	S$1,00	US$1,000
100-1	a)	**Installation of Telephones on the Left Ba** Direct const. Cost				**5,000**							5,000
		Ishim River (No.01-10/9 Project List No.36)											
		100-1- Installation of telephones w/VAT	LS	1		5,000							5,000
	b)	O&M Cost per annum per direct construction cost 2 %				100			100			100	
	c)	Replacement Cost Structure life (year) 30				0							
100-2	a)	**Astana New Local Telecommunication N** Direct const. Cost				**39,597**			**52,528**			**38,093**	130,218
		100-2- Sitching system	LS	1		7,129	1		9,470	1		6,857	23,456
		100-2- Transmission system (STM-16 ADM)	LS	1		635	1		844	1		611	2,090
		100-2- Digital Loop Carrier Equipment	LS	1		15,348	1		20,388	1		14,762	50,498
		100-2- Outside plant	LS	1		14,881	1		19,769	1		14,312	48,962
		100-2- Power supply system	LS	1		919	1		1,221	1		884	3,024
		100-2- Buildings	LS	1		460	1		611	1		442	1,513
		100-2- Training	LS	1		225	1		225	1		225	675
	b)	O&M Cost per annum				2,653			5,563			7,882	
		(assumed at 50 % of current value of Kazakhtelecom)											
	c)	Replacement Cost Structure life (year)				0			0			0	
100-3	a)	**Administration Data Communication Net** Direct const. Cost											
		(IP Network)				**8,862**							8,862
		100-3- Capital sub-center system	LS	1		8,015							8,015
		100-3- IT center system	LS	1		847							847
	b)	O&M Cost per annum 3				132			132			132	
		(assumed at 20 % of monthly income)											
	c)	Replacement Cost Structure life (year) 30				0							
	a)	**Total Direct construction cost**				**53,459**			**52,528**			**38,093**	
		cumulative							**105,987**			**144,080**	
	b)	**Total Operation and Maintenance cost per annum**				**2,885**			**5,795**			**8,114**	
	c)	**Total Replacement cost**				**0**			**0**			**0**	

Table O.4.29 Cost Estimate Sheet forSolid Waste Sector, Phase I, II and III (Direct Construction Cost, O Cost and Replacement Cost) (1/3)

US$ 1.0=Tenge 144.0=JY 108.0

Cost code			Descriptions						Unit	2010			2020			2030			2010 to 2030
										Q'ty	unit cost	amount	Q'ty	unit cost	amount	Q'ty	unit cost	amount	
											US$	US$1,00		US$	S$1,00		US$	S$1,00	US$1,000
110-1	a)	**Lanfill-1 Projec**	Direct construction cost									**17,930**							
		110-1-1	Improvement of existing landfill site				3	%	LS	1		3,200							
		110-1-2	Construction of landfill-1 (15 ha)				3	%	LS	1		3,786							
		110-1-3	Machinery for landfill-1				3	%	LS	1		1,554							
		110-1-4	Machinery for waste collection & transportation				3	%	set	100		5,785							
		110-1-5	Machinery for city cleaning				3	%	LS	1		2,060							
		110-1-6	Dendrological center				1	%	LS	1		1,545							
	b)	O&M Cost per annum per direct construction cost of 110-1-3 to110-1-6										552			552			552	
		1)	Operation cost	(calculated by ratio 1-3 % above against direct const. Cost)															
		2)	Salaries					US$	254,592										
			landfill worker	persons	20	US$/mth.	208		49,920										
			collection worker	persons	75	US$/mth.	208		187,200										
			dendrological worker	persons	7	US$/mth.	208		17,472										
	c)	Replacement cos	Structure life (year)					20				0							
110-1	a)	**Landfill-2 Project (phase**	Direct construction cost												**6,178**				
		110-1-1	Construction of landfill-2 (18.3 ha)						LS				1		5,559				
		110-1-2	Machinery for landfill-2 (phase 1)						LS				1		619				
	b)	O&M Cost per annum per direct construction cost of 110-1-2					3	%							81			81	
		1)	Operation cost	(calculated by ratio 3 % above against direct const. Cost)															
		2)	Salaries					US$	62,400						0				
			worker	persons	25	US$/mth.	208		62,400										
	c)	Replacement cos	Structure life (year)					20											
																		15,526	
110-1	a)	**Landfill-2 Project (phase**	Direct construction cost													1		13,972	
		110-1-1	Construction of landfill-2 (46 ha)						LS							1		1,554	
		110-1-2	Machinery for landfill-2 (phase 2)						LS									122	
	b)	O&M Cost per annum per direct construction cost of 110-1-2					3	%											
		1)	Operation cost	(calculated by ratio 3 % above against direct const. Cost)															
		2)	Salaries					US$	74,880										
			worker	persons	30	US$/mth.	208		74,880										
	c)	Replacement cos	Structure life (year)					20										0	
110-2	a)	**Hazardous HSW Incinerator Project (1)**	Direct construction cost									**1,500**							
		110-2-1	Construction of HHSW incinerator						LS	1		1,500							
	b)	O&M Cost per annum per direct construction cost					5	%				92			92			92	
		1)	Operation cost	(calculated by ratio 5 % above against direct const. Cost)															
		2)	Salaries					US$	17,472										
			worker	persons	7	US$/mth.	208		17,472										
	c)	Replacement cos	Structure life (year)					20				0							
															2,500				
110-2	a)	**Hazardous HSW Incinerator Project (2)**	Direct construction cost						LS				1		2,500				
		110-2-1	Construction of HHSW incinerator																

Table O.4.29 Cost Estimate Sheet forSolid Waste Sector, Phase I, II and III (Direct Construction Cost, O Cost and Replacement Cost) (2/3)

US$ 1.0=Tenge 144.0=JY 108.0

Cost code			Descriptions						Unit	2010			2020			2030			2010 to 2030
										Q'ty	unit cost	amount	Q'ty	unit cost	amount	Q'ty	unit cost	amount	
											US$	US$1,00		US$	S$1,00		US$	S$1,00	US$1,000
	b)	O&M Cost per annum per direct construction cost					5	%							145			145	
		1)	Operation cost	(calculated by ratio 5 % above against direct const. Cost)															
		2)	Salaries			US$	19,968												
			worker	persons	8	US$/mth.	208	19,968											
	c)	Replacement cos Structure life (year)					20								0				
110-3	a)	**Waste Collection Vehicle (** Direct construction cost													**1,059**				
		110-3-1	Procurement, machinery for waste collection and transportation						set				18	58,830	1,059				
	b)	O&M Cost per annum per direct construction cost					3	%							331			331	
		1)	Operation cost	(calculated by ratio 3 % above against direct const. Cost)															
		2)	Salaries			US$	299,520												
			worker	persons	120	US$/mth.	208	299,520											
	c)	Replacement cos Structure life (year)					10		set				100	58,830	5,883				
																		0	
110-3	a)	**Waste Collection Vehicle (** Direct construction cost																	
		110-3-	Procurement, machinery for waste collection and transportation						set							0	58,830	0	
		110-3-	Procurement, machinery for secondary transportation						set							0	58,830	0	
	b)	O&M Cost per annum per direct construction cost					3	%										275	
		1)	Operation cost	(calculated by ratio 3 % above against direct const. Cost)															
		2)	Salaries			US$	274,560												
			worker	persons	110	US$/mth.	208	274,560											
	c)	Replacement cos Structure life (year)					10		set							114	58,830	6,707	
110-4	a)	**Pilot Scale MSW Treatment Project** Direct construction cost													**10,000**				
		110-4-	Construction of MSW intermediate treatment plant						set				1		10,000				
	b)	O&M Cost per annum per direct construction cost					7	%							750			750	
		1)	Operation cost	(calculated by ratio 7 % above against direct const. Cost)															
		2)	Salaries			US$	49,920												
			worker	persons	20	US$/mth.	208	49,920							0				
	c)	Replacement cos Structure life (year)					20												
110-5	a)	**New City Center Recycling Center pr** Direct const. Cost													**80**				
		110-5-	Construction of recycling center						m2				400		80				
	b)	O&M Cost per annum per direct construction cost					1	%							26			26	
		1)	Operation cost	(calculated by ratio 1 % above against direct const. Cost)															
		2)	Salaries			US$	24,960												
			worker	persons	10	US$/mth.	208	24,960											
	c)	Replacement cos Structure life (year)					20								0				
110-6	a)	**MSW Trasfer Station** Direct construction cost																**2,457**	
		110-3-	Construction of MSW transfer station						set							1		2,457	
	b)	O&M Cost per annum per direct construction cost					3	%										99	
		1)	Operation cost	(calculated by ratio 3 % above against direct const. Cost)															

Table O.4.29 Cost Estimate Sheet forSolid Waste Sector, Phase I, II and III (Direct Construction Cost, O Cost and Replacement Cost) (3/3)

US$ 1.0=Tenge 144.0=JY 108.0

Cost code			Descriptions	Unit	2010			2020			2030			2010 to 2030
					Q'ty	unit cost	amount	Q'ty	unit cost	amount	Q'ty	unit cost	amount	
						US$	US$1,00		US$	S$1,00		US$	S$1,00	US$1,000
		2)	Salaries US$ 24,960											
			worker persons 10 US$/mth. 208 24,960											
	c)	Replacement cos Structure life (year) 20											0	
	a)	**Total**	**Direct construction cost**				**19,430**			**19,817**			**15,526**	
		Cumulative					**19,430**			**39,247**			**54,773**	
	b)	Total	Operation and Maintenance cost per annum				**644**			**1,977**			**2,472**	
	c)	Total	Repalcement cost				**0**			**5,883**			**6,707**	

Table O.4.30 Unit and Macroscopic Construction Cost and Land Acquisition Cost, Phase I, II and III (The Year of 2000 basis) (1/2)

US$1.0=Tenge 144.0=JY108.0

Code No.	Cost Items	Region / Sector	Type of work / Specifications		unit	unit cost in (US$)	unit cost in (Tenge)	source/information /reference
10	**Urban Development**							
	Land acquisition	Central planning region			m2	2.78	400	Decree No. 576, May 1996
		Northern planning region			m2	1.39	200	and market survey data
		Southeastern planning region			m2	1.39	200	
		Southern planning region			m2	0.69-2.08	100-300	
		Northwestern planning region			m2	0.69-1.39	100-200	
	Residential	low density			m2	200		1) Decree No.566, May 1999
		medium density			m2	300		and market survey data
		high density			m2	500		2) included foundation, interior
								and infrastructure facilities
		House	Brick made		m2	10		Survey data
	Office	Residential district 13 and 14			m2	400		1) Decree No.566, May 1999
		Other district			m2	300		and market survey data
								2) included foundation, interior
								and infrastructure facilities
	Commercial	all district			m2	200		1) included foundation, interior
								and infrastructure facilities
	(Infrastructures)							
20	**Transportation**	Road	Construction	6-lane x 3.75 m	km	800,000		open joint stock company
				4-lane x 3.75 m	km	500,000		and survey data
				2-lane x 3.75 m	km	300,000		
				1-lane x 3.75 m	km	200,000		
			Improvement	6-lane x 3.75 m	km	400,000		open joint stock company
				4-lane x 3.75 m	km	300,000		and survey data
				2-lane x 3.75 m	km	230,000		
				1-lane x 3.75 m	km	180,000		
			Asphalt pavement	t=5 cm	m2	6		Survey data
		Bridge	Construction	RC	m2	1,200		Survey data
		Tunnel	Construction	4-lane road tunnel	m	75,000		Survey data
		Railway	Construction	Double track	km	800,000		Survey data
				Cargo yard	ha	300,000		Survey data
				Cargo terminal w/roof, cranes	ha	2,000,000		Survey data
30	**Water Resources**	Water charge	Raw water		m3		6.98	committee of w. resource
40	**Water supply**	Water supply pipes		Carbon steel pipe, D1,600 mm	m	350		Survey data
		(supply cost)		Carbon steel pipe, D1,400 mm	m	270		Survey data
				Carbon steel pipe, D1,000 mm	m	190		Survey data
				Ductile iron pipe, D800 mm	m	390		Survey data
				Ductile iron pipe, D500 mm	m	190		Survey data
				Ductile iron pipe, D300 mm	m	90		Survey data
		Water supply pipes		PVC pipe, D200 mm	m	50		Survey data
		(supply and installation)		PVC pipe, D75 mm	m	10		Survey data
		Potable water tractment fscility		5,000 m3 capacity	m3	520		KT 570.3/m3 in 1991
								Astanagorproekt/Kazakhtrans-
								techmontazh
		Potable water tractment fscility		10,000-50,000 m3 capacity	m3	340		KT 417.9/m3 in 1991
								Astanagorproekt/Kazakhtrans-
								techmontazh
		Potable water tractment fscility		100,000-200,000 capacity	m3	250		KT 276/m3 in 1991
								Astanagorproekt/Kazakhtrans-
								techmontazh
50	**Sewerage**	Sewer pipes		Reinforced C. Pipe, D1,000 mm	m	135		Survey data
		(supply and installation)		Reinforced C. Pipe, D500 mm	m	80		Survey data
		Waste water tractment fscility		5,000 m3 capacity	m3	450		KT 852/m3 in 1991
								Astanagorproekt/Kazakhtrans-
								techmontazh
		Waste water tractment fscility		10,000-50,000 m3 capacity	m3	340		KT 459/m3 in 1991
								Astanagorproekt/Kazakhtrans-
								techmontazh
		Waste water tractment fscility		100,000-150,000 capacity	m3	230		KT 244/m3 in 1991
								Astanagorproekt/Kazakhtrans-
								techmontazh
60	**Stormwater drainage**		Drainage pipe	RC D500 mm	m	80		Survey data
			(supply & install.)	RC D1,000 mm	m	135		Survey data
70	**Flood protection**		Excavation	river channel, common	m3	4		Survey data
			Dredging	river channel	m3	3		Survey data
			Embankment	river dike	m3	5		Survey data

Table O.4.30 Unit and Macroscopic Construction Cost and Land Acquisition Cost, Phase I, II and III (The Year of 2000 basis) (2/2)

US$1.0=Tenge 144.0=JY108.0

Code No.	Cost Items	Region / Sector	Type of work / Specifications		unit	unit cost in (US$)	unit cost in (Tenge)	source/information /reference
80	**Electric & heat energy**	Transmission line	Construction	110 kV transmission line	km	150,000		Survey data
				(under ground and verhead)		to 190,000		
				150 kV transmission line	km	190,000		1994, Indonesia
				(double circuit, 2x429 mm2)				
				70 kV transmission line	km	96,000		1994, Indonesia
				(ACSR, double circuit)				
				10 kV transmission line	km	15,000		KT 15,000/km in 1991
								Astanagorproekt
		Substation	Construction	110/10 kV substation	place	4,000,000		Survey data
				Conventional substation	place	6,800,000		1994, Indonesia
				(500 kV one complete line)				
				GIS (gas insulated switchgear)	place	6,700,000		1994, Indonesia
				(150 kV complete line)				
		Generating cost	1-kWh at source	Hydropower	kWh		0.3-0.8	MEIT (Ministry of Energy,
				Gas	kWh		1.5-1.7	Industry and Trade), 1998
				Coal	kWh		1.4-1.5	including 20 % VAT
				Oil	kWh		1.6	MEIT
				Stand alone diesel system	kWh		4-8	MEIT
			1-kWh at source		kWh		0.8	Survey data
			Coal as fuel		ton		700	w/VAT, Survey data
			Heavy oil as fuel		ton		7,320	w/VAT, Survey data
		Distribution and transmission cost			kWh		0.22-1.5	MEIT
		Boiler	Hot water boiler	Procure. & installation	set	780,000		Survey data
90	**Gas supply**	Pipes	High pressure pipe	Carbon steel	m			Survey data
			Low pressure pipe	Carbon steel	m			Survey data
100	**Telecommunication**	Telephon line			km	20,000		KT 22,000/km in 1991
								Astanagorproekt
110	**Solid waste**	Machinery	Procurement cost	waste collection vehicle, 11 t	unit	58,000		Survey data
	Common to architecture & infrastructures		Foundation pile	Cast-in-place RC pile	m			D2,000 mm
				RC 300x300 mm, l=5 m	nos.	170		400x400 mm
			Concrete	fc=14 Mpa	m3	80		Survey data wo/form & bar
				fc=21 Mpa	m3	120		Survey data wo/form & bar
				fc=35 Mpa	m3	150		Survey data wo/form & bar
			Reinforcement bar	procurement & bending	ton	835		Survey data
			Formwork	wooden	m2	12		Survey data
				metal	m2	17		
			Excavation	common	m3	4		Survey data
				rock	m3	7		Survey data
			Embankment		m3	5		Survey data
			Backfill		m3	3		Survey data
			Procurement, pipe	CSP, D1,600 mm	m	350		Survey data
			Procurement, pipe	DIP, D600 mm	m	250		Survey data
			Metal work	Gate, penstock for hydropower	ton	3,300		1997, Indonesia
				project	ton	1,700		1998, Indonesia
					ton	2,600		1998, Vietnam
		Power tariffs of	Households	Families and small enterprises	kWh		2.87	average, MEIT 1998
		end users	Small industry	Connection <750 kW	kWh		3.53	average, MEIT 1998
			Large industry	Connection >750 kW	kWh		3.14	average, MEIT 1998
			whole average electric tariff		kWh		3.84	average, 2000

Table O.4.31 (1) Charges for Construction Workers (wage, salary and allowances, assumed)

US$ 1.0 = KT 144 = JY 108

Items	unit	unit rate tenge/day	Remarks
Construction Worker			
Foreman	day	1,300	
Operator	day	1,100	
Driver	day	1,000	
Mechanic	day	1,200	
Electrician	day	1,570	
Carpenter	day	1,500	
Reinforcement Worker	day	1,590	
Concrete Worker	day	1,364	
Common Labor	day	1,230	
Piping Fitter	day	1,700	
Welder	day	1,600	
Masonry Worker	day	1,400	
Rigger	day	1,500	
Supervisor (expatriate)	day		see Table 6.4.32
Supervisor (local)	day	3,636	
Operation and Maintenance Staff			
Manager	day	1,000	
Assistant Manager	day	800	
Accountant	day	1,000	
Administration Staff	day	500	
Engineer	day	600	
Pump & Plant Operator	day	500	
Driver	day	350	
Mechanics	day	700	
Welder	day	700	
Pipe Fitter	day	700	
Electrician	day	80	
Common Labour	day	300	
Laboratory Engineer	day	1,000	
Laboratory Staff	day	800	
Clerk	day	500 to 1,000	depend on category

Source :
Kazakhtranstechmontazh, 2000

Table O.4.31 (2) Resource and Unit Prices of Major Construction Materials, Preliminary

US$ 1.0 = KT 144 =

Items	resource			unit cost (tenge/unit)				JY108 Remarks
	ocal / Impor	Place	Distance	unit	1991	2000	2000/1991	
cemment	local	Astana,Karaganda,etc		ton	45.14	3,000	66	
fine aggregates	local	Astana	50km	m3	11.50	-		
course aggregates	local	Astana	120km	m3	20.00	-		
ready mixed concrete(market)	local	Astana,Temirtau		m3	38.00	4,800	126	
reinforcing bar, deformed	local	Temirtau	200km	ton	357.00	45,000	126	
structural steel, H-shaped	local	Temirtau	200km	ton	753.76	48,000	64	
structural steel, C-shaped	local	Temirtau	200km	ton	753.76	-		
structural steel, plate	local	Temirtau	200km	ton	542.08	45,000	83	
asphalt concrete	local	Astana		ton	37.30	-		
cast iron pipe for sewer, 200dia	local	Astana *		m	14.48	-		
cast iron pipe for sewer, 500dia	local	Astana *		m	47.88	-		
RC pipe for potable water, 800dia	import	Russia *		m	56.1	-		
RC pipe for potable water, 1000dia	import	Russia *		m	79.3	-		
screen	import	Russia			-	-		see table 6.4.30
gate and valve	import	Russia			-	-		see table 6.4.30
pump and motor	import	Russia			-	-		see table 6.4.30
instrument equipment	import	Russia			-	-		see table 6.4.30
cable for electric power	import	Russia		m	-	2,500		ASB-10KV, 3X240
cable for electric instrument	import	Russia		m	-	1,200		
Diesel Oil	local	Astana		liter	-	45		
Gasoline	local	Astana		liter	-	57		
Electric Supply	local	Astana		kWhr	-	4		

Source :
Astanagorproekt, 1991
Kazakhtranstechmontazh, 2000

* : further clarification is required

Table O.4.31 (3) Equipment Cost

US$ 1.0 = KT 144 = JY108

Items	capacity	unit	unit cost				Remarks
			1991(AKIMAT)	2000(KTTM)	2000(AHSEL)		
			tenge/unit	tenge/unit	US$/unit	tenge/unit	
Construction Equipment							
Bulldozer	11 ton	Hour	5.87	1,000	10	1,440	
Bulldozer	21 ton	Hour	11.5	1,500	13	1,872	
Backhoe	0.35 m3	Hour	5.95	1,000	8	1,152	
Backhoe	0.70 m3	Hour	7.86	2,000	12	1,728	
Backhoe	1.30 m3	Hour	12.9	3,000	11	1,584	
Wheel Loader	1.40 m3	Hour	4.23	1,500	18	2,592	
Wheel Loader	2.30 m3	Hour	4.23	1,800	28	4,032	
Dump Truck	4 t	Hour	8.5	1,000	-	-	
Dump Truck	11 t	Hour	8.5	2,200	-	-	
Truck Crane	20 t	Hour	10.1	-	-	-	
Truck Crane	32 t	Hour	24	-	-	-	
Crawler Crane	50 t	Hour	16.6	3,200	-	-	
Crawler Crane	100 t	Hour	49.1	5,000	-	-	
Cargo Trailer	10 t	Hour	8.5	2,800	10	1,440	
Cargo Trailer	20 t	Hour	8.5	5,600	13	1,872	
Vibration Roller	10 t	Hour	5.99	-	5	720	
Tire Roller	8/20 t	Hour	3.95/9.49	500	8	1,152	
Motor Grader	3.1 m	Hour	6.63	-	10	1,440	
Asphalt Finisher	2.5/5.0 m	Hour	10.5	-	-	-	
Pick Up Truck	1 t	Hour	4.23	-	-	-	

Source :
Astanagorproekt, 1991
Kazakhtranstechmontazh, 2000
AHSEL, 2000

Table O.5.1 (1) Annual Basis Operation and Maintenance Cost in Phase I (2001-2010)

US$ 1.0=Tenge 144.0=JY108.0 unit : US$ thousand

Code No.	Region / Sector		new (n) or improve (I)	section	Phase I (2001-2010) 2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
10	**Townscape and Architectures (Maintenance Cost)**				20,138	20,138	20,138	20,138	20,138	20,138	20,138	20,138	20,138	20,138
	10-1	Central Planning Region			1,339	1,339	1,339	1,339	1,339	1,339	1,339	1,339	1,339	1,339
	10-2	Northern Planning Region			63	63	63	63	63	63	63	63	63	63
	10-3	Southeastern Planning Region			10,005	10,005	10,005	10,005	10,005	10,005	10,005	10,005	10,005	10,005
	10-4	Southern Planning Region			8,504	8,504	8,504	8,504	8,504	8,504	8,504	8,504	8,504	8,504
	10-5	Northwest Planning Region			227	227	227	227	227	227	227	227	227	227
	Infrastructures (Operation and Maintenance Cost)				14,290	17,357	17,357	18,194	18,318	21,855	23,725	24,647	24,647	24,647
20	Transportation													
	20-1	Special road	n	sp-2, 3	0	0	0	0	0	150	150	150	150	150
	20-2	Main streets of City Importance/Main road	n	sp-1	0	0	0	350	350	350	350	350	350	350
		Main streets of City Importance/Main road	n & I<1	a-1 to a-10	1,333	1,333	1,333	1,333	1,333	2,665	2,665	2,665	2,665	2,665
	20-3	Main streets of City Importance/Primary road	n & I<1	p-1 to p-1	326	326	326	326	326	652	652	652	652	652
	20-4	Main streets of Regional Importance	n & I<1	s-1 to s-46	468	468	468	468	468	468	936	936	936	936
	20-5	Streets and Roads of Local Importance		TR1, 2, 3	0	0	0	0	0	0	270	270	270	270
	20-6	Trolley Bus Project	n & I<1		124	124	124	124	248	248	248	248	248	248
	20-7	Bridge	n	b-2 to b-2	0	0	0	0	0	147	147	147	147	147
	20-8	Bridge	n	f-3 to f-15	0	0	0	0	0	0	0	1,108	1,108	1,108
	20-9	Tunnel	n	t-1	0	0	0	0	0	0	0	0	0	0
	20-10, 11, 12	Light Railway Transit	n	L-1, 2, 3	0	0	0	0	0	0	0	0	0	0
	20-13 to 17	Terminal	n	T-1 to T-5	0	0	0	0	0	0	0	14	14	14
	20-18 to 21	Traffic Management	n		0	0	0	0	0	0	0	0	0	0
	20-22 to 24	Railway	n		0	0	0	0	0	0	0	0	0	0
	20-25	Airport	n & I<1	Astana	488	488	488	975	975	975	975	975	975	975
		Sub total per annum			2,738	2,738	2,738	3,576	3,700	5,655	6,393	7,515	7,515	7,515
					3,067	6,134	6,134	6,134	6,134	6,134	6,134	6,134	6,134	6,134
30	Water Resources			<2	2,235	2,235	2,235	2,235	2,235	2,235	2,235	1,974	1,974	1,974
40	Water Supply			<3	1,490	1,490	1,490	1,490	1,490	1,490	1,490	1,551	1,551	1,551
50	Sewerage			<4	18	18	18	18	18	18	18	18	18	18
60	Stormwater Drainage			<5	15	15	15	15	15	154	154	154	154	154
70	Flood Protection			<6	2,640	2,640	2,640	2,640	2,640	2,640	3,772	3,772	3,772	3,772
80	Electric Power and Heat Supply				0	0	0	0	0	0	0	0	0	0
90	Gas Supply			<7	1,443	1,443	1,443	1,443	1,443	2,885	2,885	2,885	2,885	2,885
100	Telecommunication				644	644	644	644	644	644	644	644	644	644
110	Solid Waste													
200	**Total per annum**				34,428	37,495	37,495	38,332	38,456	41,993	43,863	44,785	44,785	44,785

note <1 assumed 50 % for improvement works and as O & M cost before completion of the project

<2, <3 assumed 60 % for water supply and 40 % for sewerage from the total O & M cost of Tenge 536,4441thousand in 1999 till th eyear 2007

<4 for the year 2001 to 2010, assumed 5 % of the O & M cost (US$ 351,000) in 2011for the existing facilities

<5 for the year 2001 to 2005, assumed 10 % of the O & M cost (US$ 351,000) in 2006 for the existing facilities

<6 for the year 2001 to 2006, assumed 70 % of the O & M cost (US$ 3,772,000) in 2007 for the existing facilities

<7 for the year 2001 to 2005, assumed 50 % of the O & M cost (US$ 2,885,000) in 2007 for the existing facilities

Table O.5.1 (2) Annual Basis Operation and Maintenance Cost in Phase II (2011-2020)

US$ 1.0=Tenge 144.0=JY108.0 unit : US$ thousand

Code No.	Region / Sector		new (n) or improve (I)	section	Phase II (2011-2020)									
					2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
10	**Townscape and Architectures (Maintenance Cost)**				39,926	39,926	39,926	39,926	39,926	39,926	39,926	39,926	39,926	39,926
	10-1	Central Planning Region			4,237	4,237	4,237	4,237	4,237	4,237	4,237	4,237	4,237	4,237
	10-2	Northern Planning Region			394	394	394	394	394	394	394	394	394	394
	10-3	Southeastern Planning Region			14,716	14,716	14,716	14,716	14,716	14,716	14,716	14,716	14,716	14,716
	10-4	Southern Planning Region			15,703	15,703	15,703	15,703	15,703	15,703	15,703	15,703	15,703	15,703
	10-5	Northwest Planning Region			4,876	4,876	4,876	4,876	4,876	4,876	4,876	4,876	4,876	4,876
	Infrastructures (Operation and Maintenance Cost)				33,828	33,828	35,161	39,276	39,276	42,685	45,120	45,466	45,466	51,330
20	Transportation													
	20-1	Special road	n	sp-2, 3	150	150	150	150	150	150	150	150	150	150
	20-2	Main streets of City Importance/Main road	n	sp-1	350	350	350	700	700	700	700	700	700	700
		Main streets of City Importance/Main road	n & I<1	a-1 to a-10	2,665	2,665	2,665	2,665	2,665	3,035	3,035	3,035	3,035	3,035
		Main streets of City Importance/Primary road	n & I<1	p-1 to p-1	652	652	652	652	652	1,537	1,537	1,537	1,537	1,537
	20-3	Main streets of Regional Importance	n & I<1	s-1 to s-46	936	936	936	936	936	936	2,649	2,649	2,649	2,649
	20-4	Streets and Roads of Local Importance		TR1, 2, 3	270	270	270	270	270	270	990	990	990	990
	20-5	Trolley Bus Project	n & I<1		248	248	248	248	248	248	248	248	248	248
	20-6	Bridge	n	b-2 to b-2	147	147	147	147	147	284	284	284	284	284
	20-7	Bridge	n	f-3 to f-15	1,108	1,108	1,108	1,108	1,108	1,198	1,198	1,198	1,198	1,198
	20-8	Tunnel	n	t-1	0	0	0	0	0	0	0	0	0	0
	20-9	Light Railway Transit	n	L-1, 2, 3	6,260	6,260	6,260	6,260	6,260	6,260	6,260	6,260	6,260	6,260
	20-10, 11, 12	Terminal	n	T-1 to T-5	14	14	14	14	14	14	16	16	16	16
	20-13 to 17	Traffic Management	n		80	80	80	80	80	80	80	80	80	80
	20-18 to 21	Railway	n		0	0	0	0	0	612	612	612	612	612
	20-22 to 24	Airport	n & I<1	Astana	975	975	975	975	975	975	975	975	975	975
	20-25	Sub total per annum			13,855	13,855	13,855	14,205	14,205	16,299	18,734	18,734	18,734	18,734
30	Water Resources				6,134	6,134	6,134	6,134	6,134	6,134	6,134	6,134	6,134	6,134
40	Water Supply				1,974	1,974	1,974	2,829	2,829	2,829	2,829	2,829	2,829	2,829
50	Sewerage				1,551	1,551	1,551	1,551	1,551	2,368	2,368	2,368	2,368	2,368
60	Stormwater Drainage				351	351	351	351	351	601	601	601	601	601
70	Flood Protection				154	154	154	154	154	402	402	402	402	402
80	Electric Power and Heat Supply				4,320	4,320	4,320	4,320	4,320	4,320	4,320	4,320	4,320	10,184
90	Gas Supply				1,960	1,960	1,960	1,960	1,960	1,960	1,960	2,306	2,306	2,306
100	Telecommunication				2,885	2,885	2,885	5,795	5,795	5,795	5,795	5,795	5,795	5,795
110	Solid Waste				644	644	1,977	1,977	1,977	1,977	1,977	1,977	1,977	1,977
200	**Total per annum**				73,754	73,754	75,087	79,202	79,202	82,611	85,046	85,392	85,392	91,256